HOW TO USE THE SOIL SURVEY REPORT

THIS SOIL SURVEY of Baldwin County will serve several groups of readers. It will help farmers in planning the kind of management that will protect their soils and provide good yields; assist engineers in selecting sites for roads, buildings, ponds, and other structures; aid foresters in managing woodland; and add to our knowledge of soil science.

Locating soils

Use the index to map sheets at the back of this report to locate areas on the large map. The index is a small map of the county on which numbered rectangles have been drawn to show where each sheet of the large map is located. When the correct sheet of the large map has been found, it will be seen that boundaries of the soils are outlined, and that there is a symbol for each kind of soil. All areas marked with the same symbol are the same kind of soil, wherever they occur on the map. The symbol is inside the area if there is enough room; otherwise, it is outside the area and a pointer shows where the symbol belongs.

Finding information

This report contains sections that will interest different groups of readers, as well as some sections that may be of interest to all.

Farmers and those who work with farmers can learn about the soils in the section "Descriptions of Soils" and then turn to the section "Use and Management of the Soils." In this way, they first identify the soils on their farm and then learn how these soils can be managed and what yields can be expected. The "Guide to Mapping Units, Capability Units, Woodland Suitability Groups, and Range Sites" at the back of the report will simplify use of the map and report. This guide lists each soil and land type mapped in the county, and the page where each is described. It also lists, for each soil and land type, the capability unit, woodland suitability group, and range site and the pages where each of these is described.

Foresters and others interested in woodland can refer to the section "Use and Management of Woodland." In that section the soils in the county are grouped according to their suitability for trees, and factors affecting the management of woodland are explained.

Engineers will want to refer to the section "Use of Soils for Roads, Foundations, and Earthworks." Tables in that section show characteristics of the soils that affect engineering.

Scientists and others who are interested will find information about how the soils were formed and how they were classified in the section "Formation and Classification of Soils."

Students, teachers, and other users will find information about soils and their management in various parts of the report, depending on their particular interest.

Newcomers in Baldwin County will be especially interested in the section "General Soil Map," where broad patterns of soils are described. They may also be interested in the section "General Nature of the County," which gives additional information about the county.

* * * * *

Fieldwork for this survey was completed in 1960. Unless otherwise indicated, all statements in the report refer to conditions in the county at that time. The soil survey of Baldwin County was made as part of the technical assistance furnished by the Soil Conservation Service to the Baldwin County Soil Conservation District.

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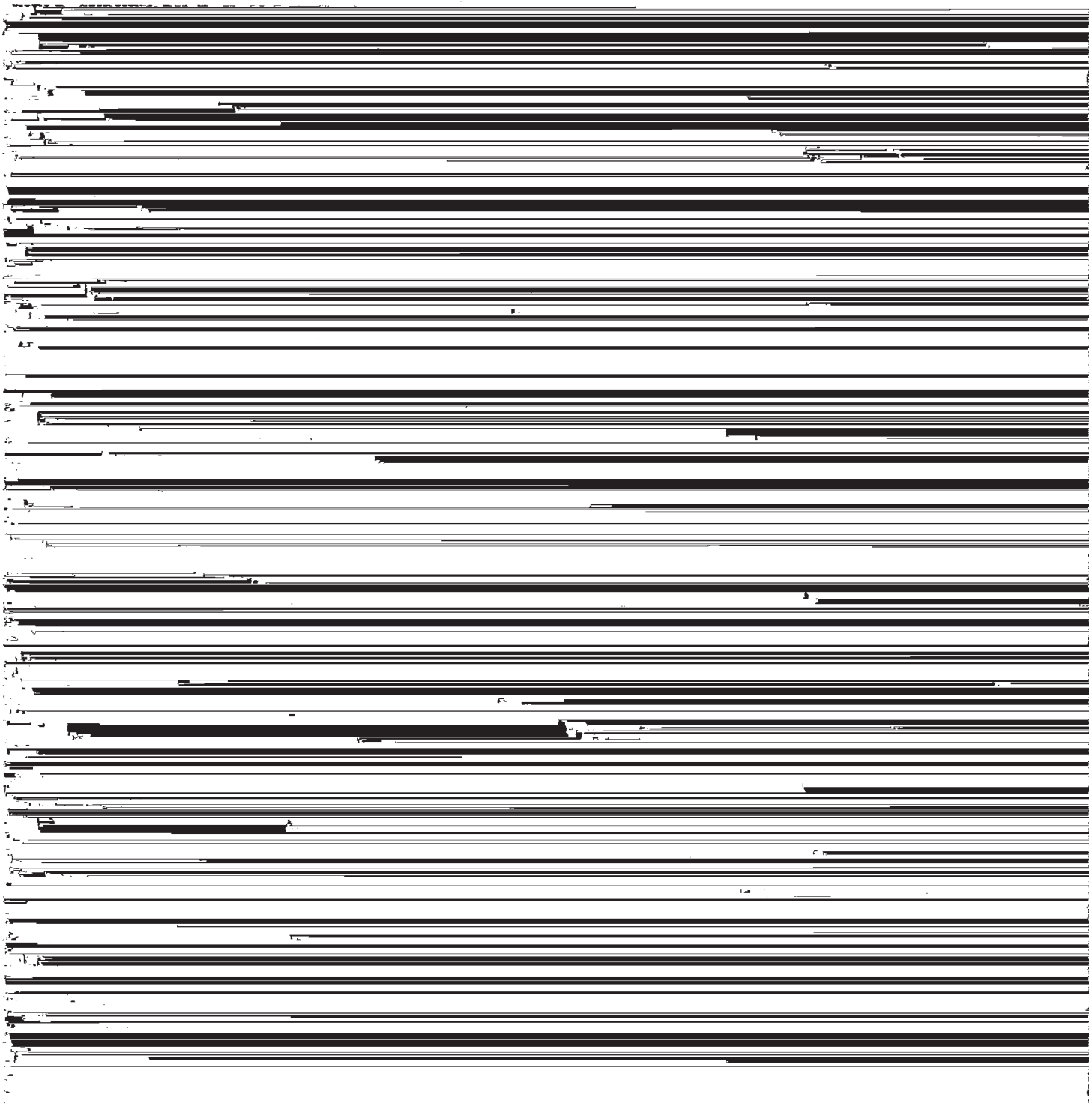
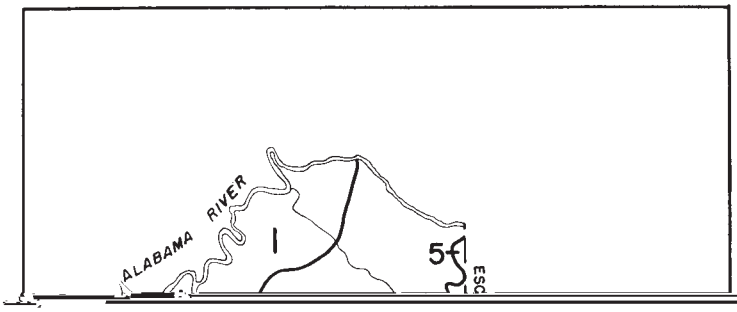
SOIL SURVEY OF BALDWIN COUNTY, ALABAMA

BY E. H. McBRIDE AND L. H. BURGESS, SOIL CONSERVATION SERVICE[1]





bigbee and Alabama Rivers. The flood plains are at an elevation ranging from near sea level to 20 feet above sea level. The terraces are at an elevation of 10 to 20 feet.

Area 2 is underlain by deposits on marine terraces. These deposits consist of marine sands and clays of Pleistocene age. They overlie the Citronelle formation in a strip about 15 miles wide along the coast. This area is nearly level to gently sloping and is at an elevation that ranges from 10 to 100 feet above sea level.

Area 3 consists of nearly level or gently sloping areas of Coastal beaches along the Gulf of Mexico. The de-

TABLE 1.—*Temperature and precipitation at Bay Minette Station, Baldwin County, Ala.*

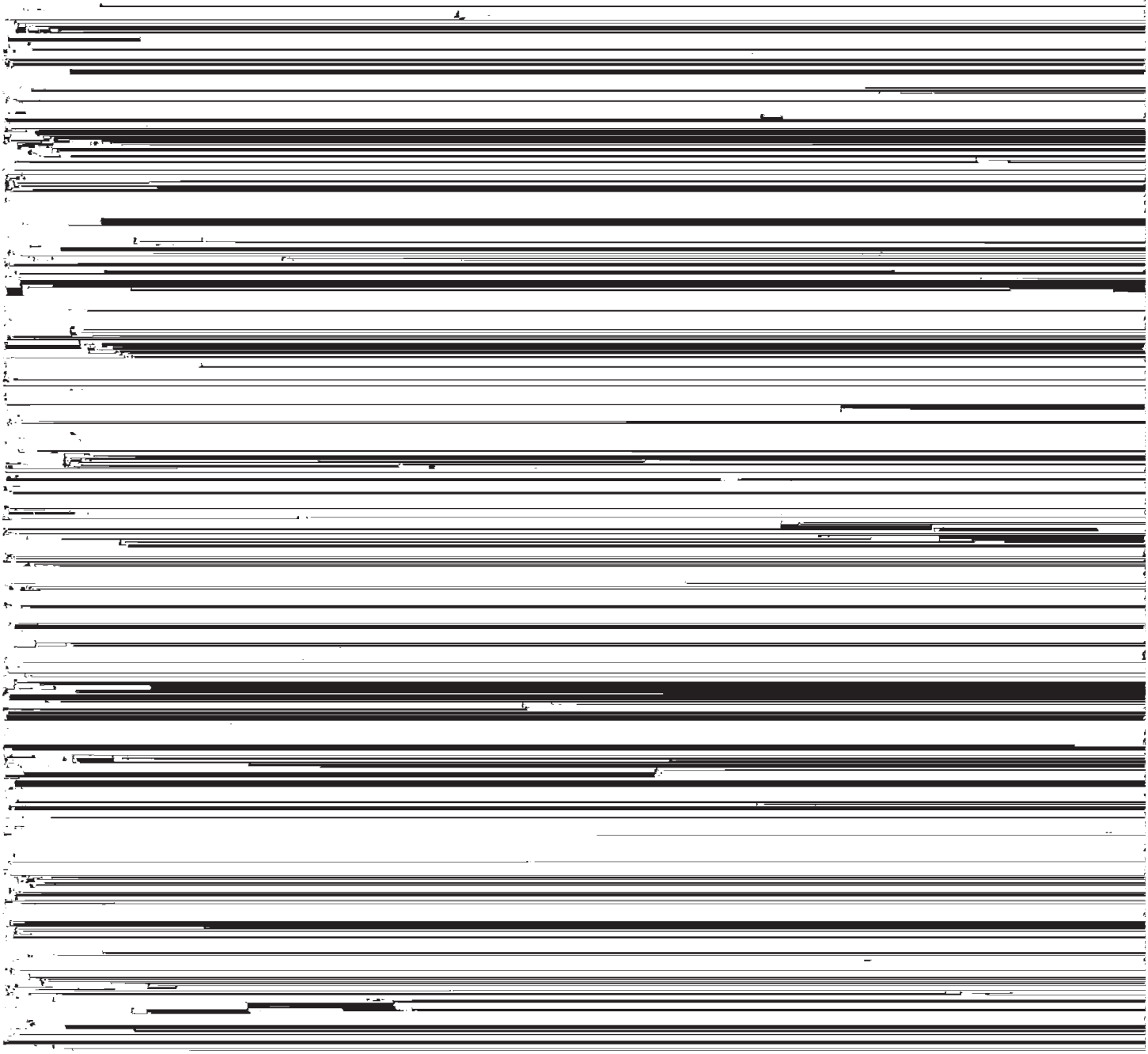
[Elevation, 268 feet]

Month	Temperature [1]			Precipitation [2]		
	Average	Absolute maximum	Absolute minimum	Average	Driest year (1954)	Wettest year (1929)
	°F.	°F.	°F.	Inches	Inches	Inches
January	52. 9	85	11	4. 53	1. 06	7. 19
February	55. 4	84	10	5. 78	1. 77	11. 63
March	60. 1	89	18	5. 62	4. 10	22. 74

McIntosh Bluff, on the Tombigbee River, was the first county seat, but Blakely became the county seat in 1820. Later, in 1868, the county seat was moved to Daphne. Finally, in 1901, it was moved to its present location in Bay Minette.

The population of the county increased from 40,997 in 1950 to 49,088 in 1960. In 1960, Bay Minette had a population of 5,197. Other towns in the county and the population of each were Fairhope, 4,858; Foley, 2,889; Daphne, 1,530; Robertsdale, 1,467; Loxley, 828; Summerdale, 522; Silverhill, 418; Elberta, 381; and Gulf Shores, 342.

Transportation.—The county has a well-developed system of highways. In 1959, it had 1,579 miles of roads, divided by kind, as follows: 251 miles of paved State

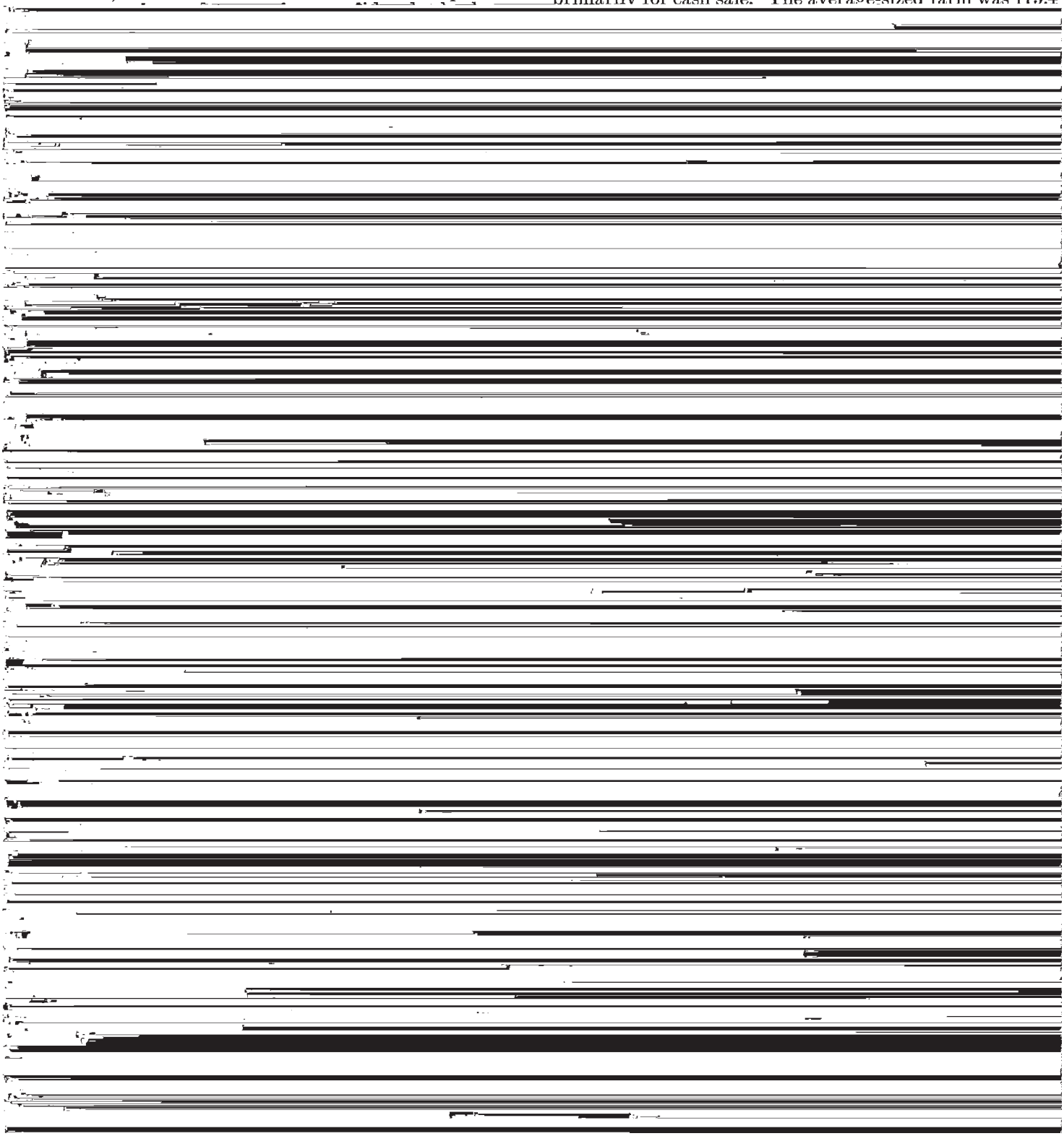


feedmills, a livestock auction barn, and a creosoting plant. There are no cotton gins in the county.

Community facilities.—The county has 6 senior high schools, 9 junior high schools, and 14 elementary schools, but there are no colleges. The schools had a total enrollment of 13,113 students in 1960. Schoolbuses are provided

Fruit and nut farms	5
Poultry farms	105
Dairy farms	59
Livestock farms other than poultry and dairy	168
General farms	129

In 1959, there were 962 farms in the county producing primarily for cash sale. The average-sized farm was 175.4

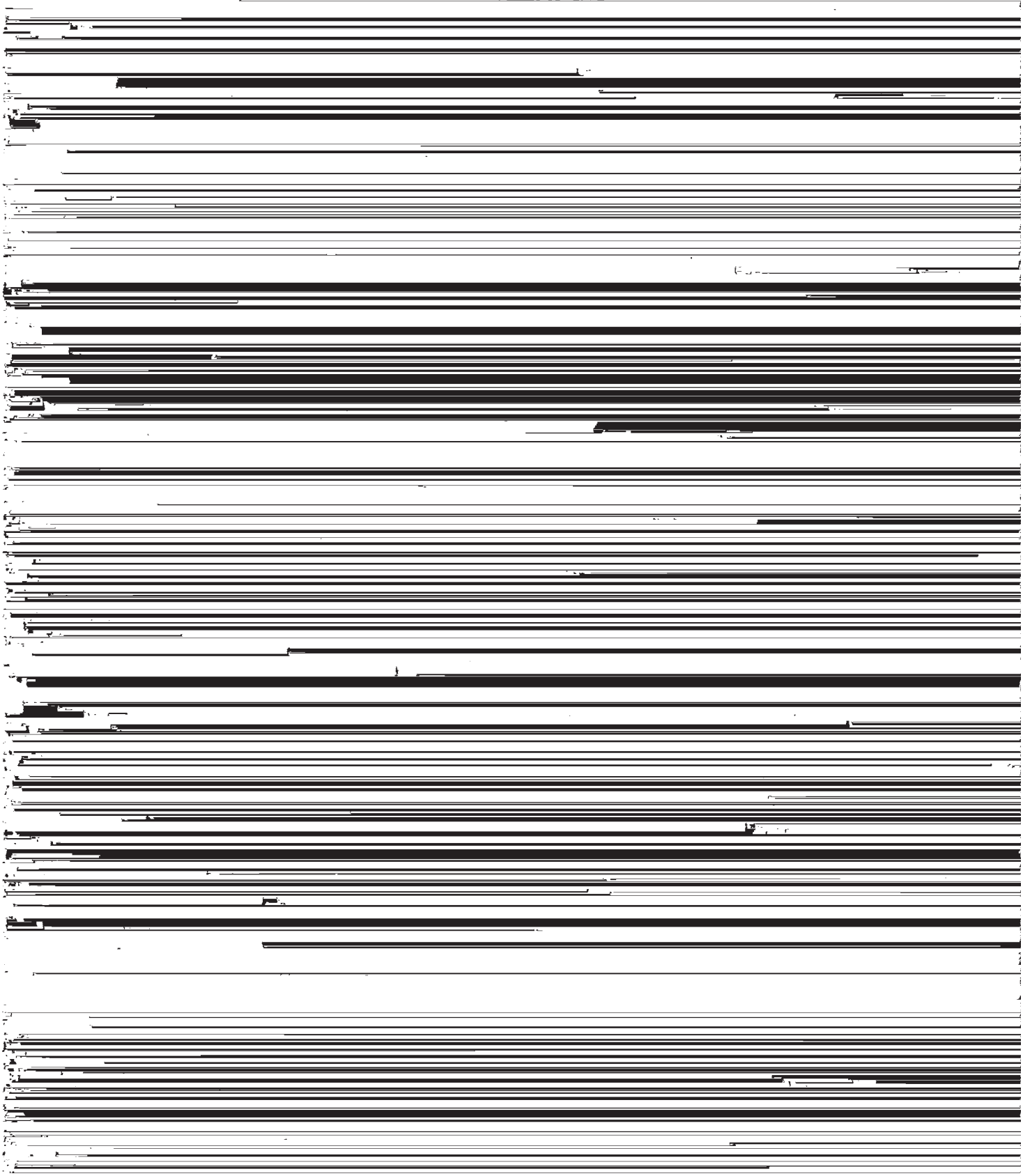


A common practice in this county is to plant fields that are newly cleared to watermelons, cantaloups, or cucumbers. The reason for this is that soils that have just been cleared are relatively free from diseases and weeds. Ordi-

TABLE 3.—*Kinds and numbers of livestock on farms*

Livestock	1954	1959

Some soil types vary so much in slope, degree of erosion, number and size of stones, or some other feature affecting this report. Each association, as a rule, contains a few major soils and several minor soils, in a pattern that is



Swamp consists of areas that are permanently wet, and Riverwash consists of deposits of sand along streams, particularly in the bends and curves.

There are many deer and turkeys within the boundaries of this association, and wild hogs and bear are in the more remote areas. The rivers and lakes are excellent for fishing. Large tracts of land, owned by individuals or by corporations, are a source of lumber and of other wood products. Except for the operators of fishing camps, the association is uninhabited.

The soils that make up this association are among the most fertile in the county, but they are limited by the hazard of flooding. They cannot be used more intensively for agriculture until they are drained and protected from flooding.

Most of this association is in hardwoods, and the rest of the acreage is used for pasture. The soils in the areas used for pasture are generally in capability subclass IIw, and those in the wooded areas are in subclasses IVw, Vw, and VIIw. Riverwash is in subclass VIIIs.

2. Flint-Wahee-Leaf Association

Moderately deep and deep, moderately well drained to

Most of this association is rather thinly populated. The small acreage of cultivated land and pasture is farmed by tenant farmers. The farmers work mainly in timber, but they produce part of their food on the farm. The soils in the association have a high potential for agricultural use and are well suited to the use of farm machinery. They cannot be used more intensively for agriculture, however, until some of the areas are drained.

A large part of this association is in pines and scattered hardwoods, and a much smaller acreage is in pasture or in cultivated crops. Nearly all of the soils in the cultivated areas are in capability class I or in subclass IIe, and those in the areas used for pasture are in subclasses IIw and IIIw. The soils in the wooded areas are in subclasses IIIw and IVw.

3. Bowie-Lakeland-Cuthbert Association

Shallow to deep, moderately well drained to excessively drained, nearly level to moderately steep soils of uplands

This soil association consists of highly dissected areas that border the flood plains of rivers. It extends from the west-central part of the county through the northern part (fig. 3). The association consists of deep, nearly level

and a subsoil of brownish-yellow to dark yellowish-brown loamy sand.

The Cuthbert soils that are mapped separately occupy only a small part of this association. They are also mapped with the Bowie and Sunsweet soils in one undifferentiated soil group and with the Bowie and Lakeland soils in another. The Cuthbert soils have a surface layer of dark grayish-brown or brown to dark-gray fine sandy loam. Their subsoil is yellowish-brown to strong-brown sandy clay or silty clay.

The Cuthbert and Sunsweet soils are somewhat similar, but the Cuthbert soils lack the many iron concretions and fragments of sandstone cemented with iron that are common in the Sunsweet soils. The Cuthbert, Bowie, Lakeland, and Sunsweet soils within this association are all

acreage in the county. The largest areas used for farming are within its boundaries.

The Marlboro soils occupy about 20 percent of the association. Their surface layer is very dark gray to brown very fine sandy loam, and their subsoil is yellowish-brown fine sandy clay loam.

The Faceville soils occupy about 12 percent of the association. Their surface layer is generally dark grayish-brown fine sandy loam, and their subsoil is yellowish-red loam.

The Greenville soils occupy about 9 percent of the association. Their surface layer is dark-brown to dark reddish-brown loam, and their subsoil is generally dark-red sandy clay loam.

Minor soils in the [illegible]

ville and the Norfolk-Klej-Goldsboro associations. This association makes up 16 percent of the total acreage in the county.

The Bowie, Tifton, and Sunsweet soils are mainly gently sloping or sloping. The Bowie soils, mapped separately, occupy about 13 percent of this association. They have a surface layer of very dark gray fine sandy loam and a subsoil of yellowish brown sandy clay loam

and mottles of yellow and brown. The land generally supports no trees, but there are a few willows and a dense cover of marsh cane, marsh grass, and rushes.

Made land occupies the remaining 4 percent of the association. This land type consists of soil material that has been pumped from the bays and rivers to form islands and building sites.

This association is used only for

Much of the association is wooded, but about one-tenth of it is used to grow cultivated crops, and a small acreage is in pasture. In the wooded areas on the uplands, the

The Hyde and Bayboro soils and Muck are also on bottoms along streams, but they are very poorly drained.

This association is the second most important agricul

sists of sand pine, oak, palmetto, cactus, and seaoats. The wetter areas are in slash pine, loblolly pine, gallberry

portionate extent of each soil mapped in the county are given in table 4. Their location is shown on the soil map

TABLE 4.—*Approximate acreage and proportionate extent of the soils*—Continued

Soil	Area	Extent
	Acres	*Percent*
Lynchburg fine sandy loam, 5 to 8 percent slopes	1,050	0.1
Made land	1,051	.1
Magnolia fine sandy loam, 0 to 2 percent slopes	3,780	.4
Magnolia fine sandy loam, 2 to 5 percent slopes	995	.1
Magnolia fine sandy loam, 2 to 5 percent slopes, eroded	508	(1)
Magnolia fine sandy loam, 5 to 8 percent slopes, eroded	400	(1)
Mantachie silt loam	26,988	2.5
Marlboro very fine sandy loam, 0 to 2 percent slopes	29,898	2.8
Marlboro very fine sandy loam, 2 to 5 percent slopes	3,669	.3
Marlboro very fine sandy loam, 2 to 5 percent slopes, eroded	498	(1)
Myatt very fine sandy loam	11,509	1.1
Norfolk fine sandy loam, 2 to 5 percent slopes	22,747	2.1
Norfolk fine sandy loam, 0 to 2 percent slopes	21,005	2.0
Norfolk fine sandy loam, 2 to 5 percent slopes, eroded	686	.1
Norfolk fine sandy loam, 5 to 8 percent slopes	4,118	.4
Okenee soils	1,548	.1
Orangeburg fine sandy loam, 0 to 2 percent slopes	4,138	.4
Orangeburg fine sandy loam, 2 to 5 percent slopes	2,794	.3
Orangeburg fine sandy loam, 2 to 5 percent slopes, eroded	355	(1)
Orangeburg fine sandy loam, 5 to 8 percent slopes	1,105	.1
Orangeburg fine sandy loam, 8 to 12 percent slopes, eroded	864	.1
Plummer loamy sand, 0 to 5 percent slopes	35,533	3.3
Plummer loamy sand, 5 to 12 percent slopes	1,805	.2
Rains fine sandy loam, 0 to 2 percent slopes	15,203	1.4
Rains fine sandy loam, 2 to 5 percent slopes	16,797	1.6
Rains fine sandy loam, 5 to 8 percent slopes	944	.1
Red Bay fine sandy loam, 0 to 2 percent slopes	7,647	.7
Red Bay fine sandy loam, 2 to 5 percent slopes	1,920	.2
Riverwash	167	(1)
Robertsdale loam	5,189	.5
Ruston fine sandy loam, 2 to 5 percent slopes	15,084	1.4
Ruston fine sandy loam, 0 to 2 percent slopes	7,917	.7
Ruston fine sandy loam, 2 to 5 percent slopes, eroded	1,089	.1
Ruston fine sandy loam, 5 to 8 percent slopes	4,213	.4
Ruston fine sandy loam, 5 to 8 percent slopes, eroded	619	.1
Ruston fine sandy loam, 8 to 12 percent slopes	793	.1
Sandy alluvial land	3,335	.3
Savannah very fine sandy loam, 0 to 2 percent slopes	3,076	.3
Scranton loamy fine sand, 0 to 2 percent slopes	9,118	.9
Scranton loamy fine sand, 2 to 5 percent slopes	4,895	.5
St. Lucie sand, 0 to 5 percent slopes	2,709	.2
St. Lucie-Leon-Muck complex	3,403	.3
Sunsweet fine sandy loam, 5 to 8 percent slopes, eroded	8,517	.8
Sunsweet fine sandy loam, 2 to 5 percent slopes, eroded	5,898	.5
Sunsweet fine sandy loam, 8 to 17 percent slopes, eroded	7,816	.7
Swamp	2,224	.2
Tidal marsh	24,011	2.2
Tifton very fine sandy loam, 0 to 2 percent slopes	9,027	.8
Tifton very fine sandy loam, 2 to 5 percent slopes	13,216	1.2
Tifton very fine sandy loam, 2 to 5 percent slopes, eroded	2,600	.2
Tifton very fine sandy loam, 5 to 8 percent slopes	2,079	.2
Tifton very fine sandy loam, 5 to 8 percent slopes, eroded	979	.1
Wahee silt loam, 0 to 2 percent slopes	1,180	.1
Wahee silt loam, 2 to 5 percent slopes	1,622	.1
Wet clayey alluvial land	54,415	5.1
Wet loamy alluvial land	46,030	4.3
Total soils	1,032,109	96.6
Airport runways	17	(1)
Mines and pits	194	(1)
Water	35,840	3.4
Total	1,068,160	100.0

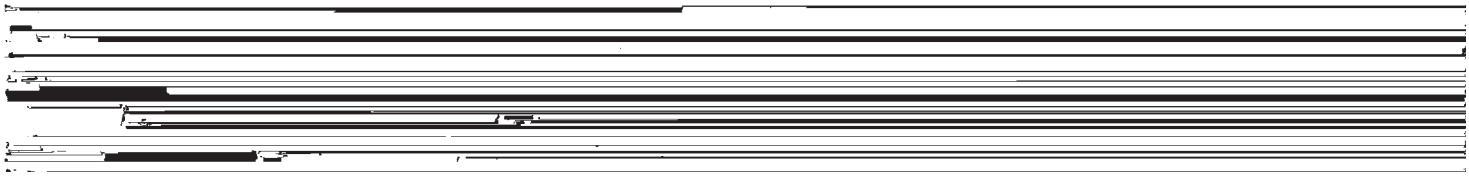
[1] Less than 0.1 percent.

The slope ranges, included in the names of many of the soils, are described by the following terms:

0 to 2 percent slopes	Nearly level.
2 to 5 percent slopes	Very gently sloping.
5 to 8 percent slopes	Gently sloping.
8 to 12 percent slopes	Sloping.
12 to 17 percent slopes	Strongly sloping.
More than 17 percent slopes	Moderately steep.

The depth of the soil, which is described for many of the soils, refers to the depth of soil material that can be penetrated readily by plant roots and that supplies nutrients and moisture for plants to use. In this report the terms used to describe the depths and their equivalent in soil scientists and others who make a special study of the soils. Most readers will need to remember only that all of the letter symbols beginning with "A" are surface layer; those beginning with "B" are subsoil; those beginning with "C" are substratum, or parent material; and those beginning with "D" are nonconforming material.

The color of each horizon is described in words, such as yellowish brown, but it can also be indicated by symbols for the hue, value, and chroma, such as 10YR 5/4. These symbols, called Munsell color notations, are used by soil scientists to evaluate the color of the soil precisely. For the profiles described, the names of the colors and the color symbols are given for moist soil, unless stated otherwise.



"eroded" is a part of the name of soils that have lost 25 to 75 percent of their original surface layer through erosion, and there are a few shallow gullies in these. In areas where there are many moderately deep and deep gullies and the soil profile has been destroyed, except for small areas between the gullies, the soil material is called Gullied land.

Some of the terms used to describe the soils are defined in the section "How Soils Are Named, Mapped, and Classified." Others are defined in the Glossary at the end of

strongly acid; clear, wavy boundary. 7 to 12 inches thick.

C_1—9 to 13 inches, light yellowish-brown (10YR 6/4) sandy loam with common, medium, distinct mottles of light gray; weak, medium, subangular blocky structure; friable; very strongly acid; gradual, wavy boundary. 3 to 5 inches thick.

C_{1g}—13 to 52 inches +, light-gray (10YR 7/1) sandy loam with common, coarse, prominent mottles of yellowish brown; weak, medium, subangular blocky structure; friable; very strongly acid.

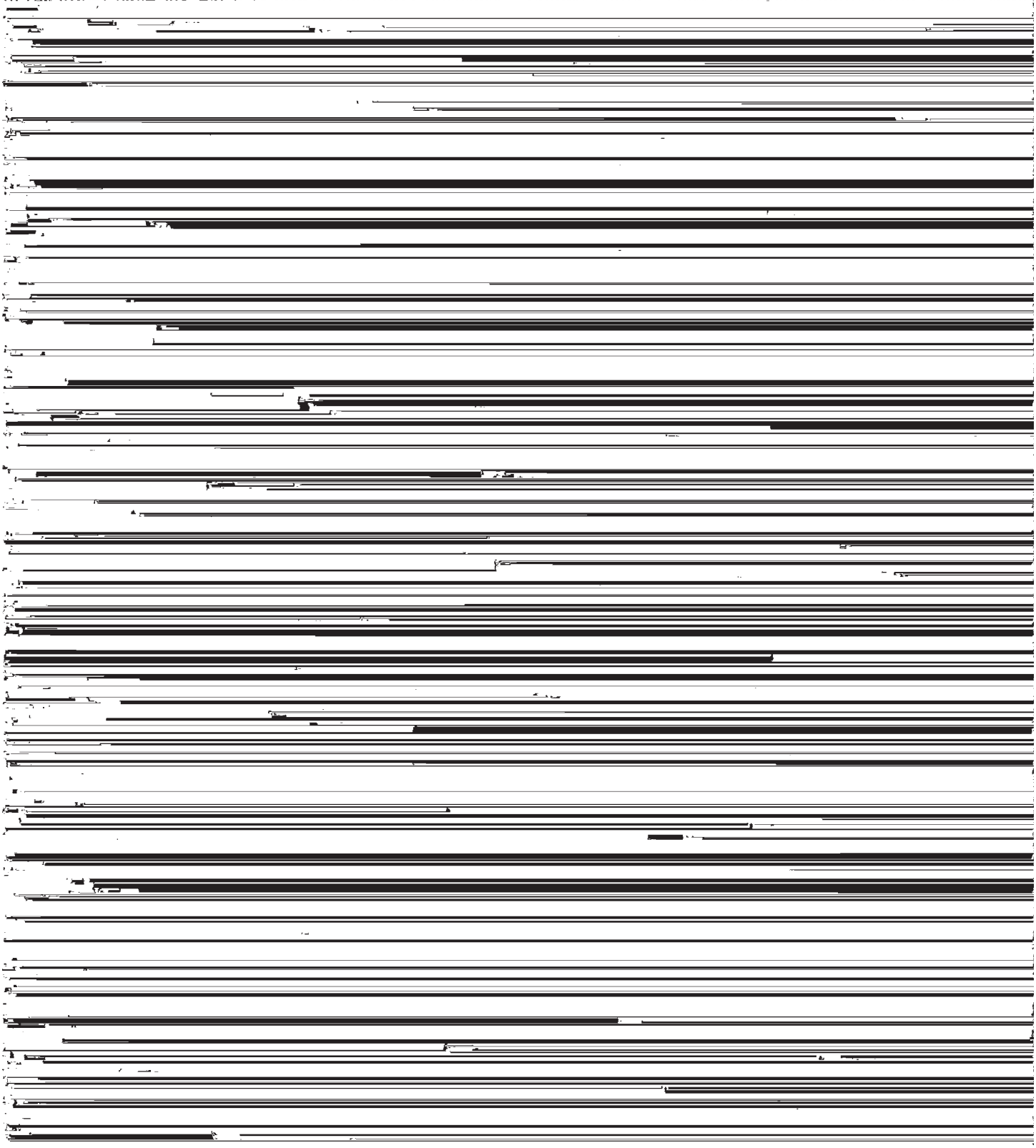
B_3—23 to 36 inches, olive-yellow (2.5Y 6/6) sandy clay loam to sandy clay; many coarse prominent mottles of

Mapped with this soil are a few areas of eroded soil in

Bowie fine sandy loam, thin solum, 2 to 5 percent slopes, is low in natural fertility and in content of organic matter. Water infiltrates slowly. Permeability is moderate in the upper horizons, but it is slow in the lower horizons.

ity unit IVe–15; woodland suitability group 7; Coastal Plain Hills range site.)

Bowie, Lakeland, and Cuthbert soils, 8 to 12 percent slopes (BwD).—These soils have more rapid runoff than



more sandy throughout than are the Flint, Wahee, Leaf, and Myatt soils, and they are better drained.

The natural vegetation on the Cahaba soils is mainly longleaf pine and slash pine. There are also scattered oaks, hickory trees, and sweetgums.

Cahaba fine sandy loam, 2 to 5 percent slopes (CaB).—This is the only Cahaba soil mapped in the county. Nearly all of it is on terraces in the northwestern part of the county near Dixie Landing. The following describes a profile in a moist area that has been cultivated:

A_p—0 to 7 inches, grayish-brown (10YR 5/2) fine sandy loam; weak, fine, crumb structure; very friable; medium acid; clear, wavy boundary.

A_3—7 to 11 inches, yellowish-red (5YR 4/6) fine sandy loam; weak, fine, crumb structure; very friable; strongly acid; diffuse, wavy boundary.

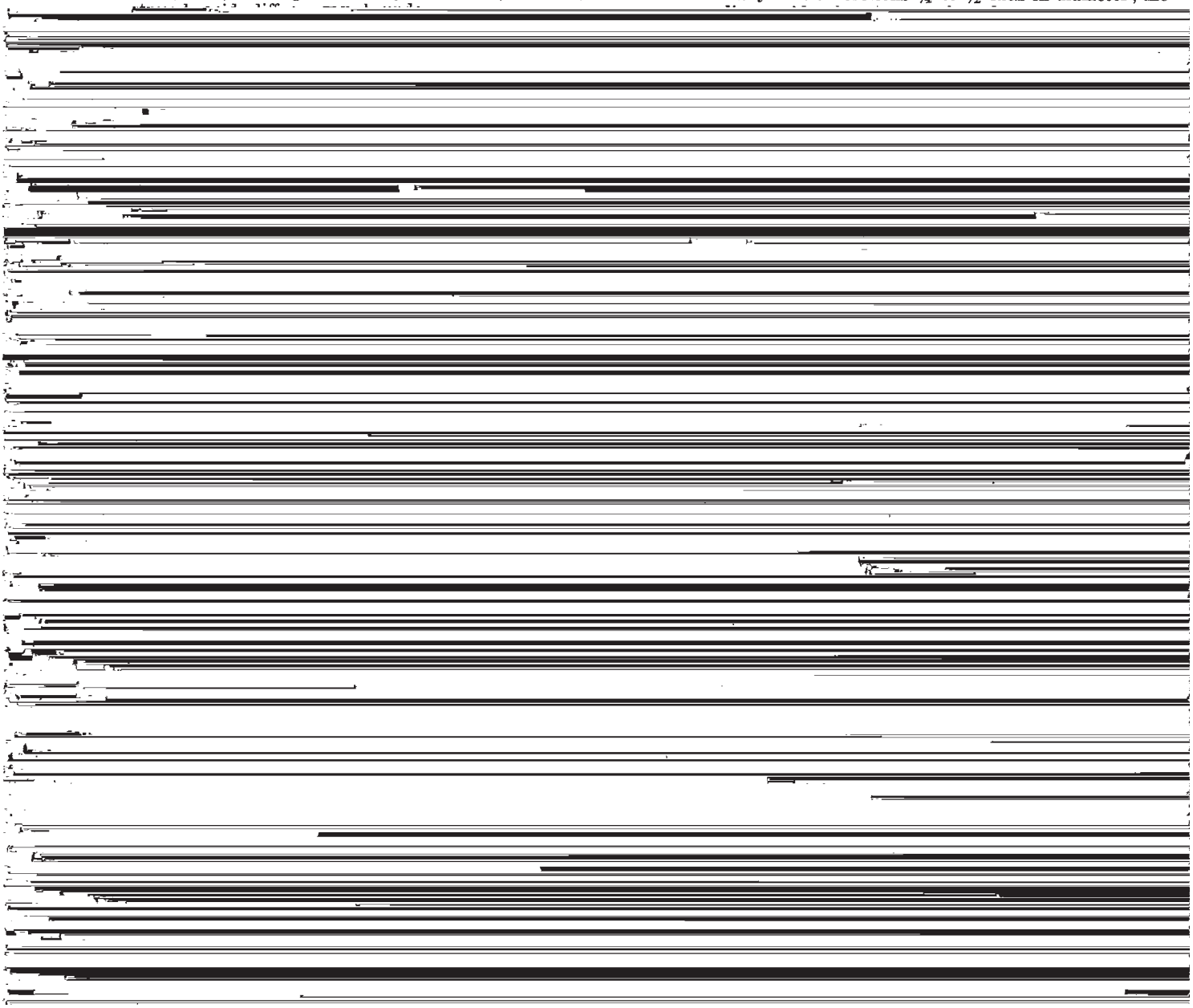
B_1—11 to 15 inches, yellowish-red (5YR 5/6) fine sandy loam; weak, fine, subangular blocky structure; friable;

The Carnegie soils occupy small areas throughout the county. They are associated with the Tifton, Faceville, and Magnolia soils. The Carnegie soils have about the same kind of texture as the Tifton, Faceville, and Magnolia soils, but their B horizon is more reddish than that of the Tifton soils. The Carnegie soils have many more iron concretions, both on the surface and in the subsoil, than either the Faceville or Magnolia soils.

The natural vegetation on the Carnegie soils is longleaf pine, loblolly pine, oak, sweetgum, and dogwood.

Carnegie very fine sandy loam, 2 to 5 percent slopes (CgB).—This soil is deep and well drained. The following described a profile in a moist pasture (NW¼SW¼ sec. 5, T. 6 S., R. 4 E.):

A_p—0 to 7 inches, dark yellowish-brown (10YR 4/4) very fine sandy loam; weak, fine, crumb structure; very friable; many iron concretions ¼ to ½ inch in diameter; me-



off is more rapid, and the hazard of erosion is moderate to severe. The soil responds well to fertilizer.

This soil is suited to pasture and trees, and nearly all of it is wooded. Its greatest limitations are the strong slope and the hazard of erosion. The soil can be used for cultivated crops if it is well managed and a complete system is installed to dispose of excess water. It needs to be kept in sod crops about two-thirds of the time. (Capability unit IIIe–11; woodland suitability group 5; Coastal Plain Hills range site.)

Carnegie very fine sandy loam, 5 to 8 percent slopes, eroded (CgC2).—This soil is more reddish and contains more clay than Carnegie very fine sandy loam, 2 to 5 per-

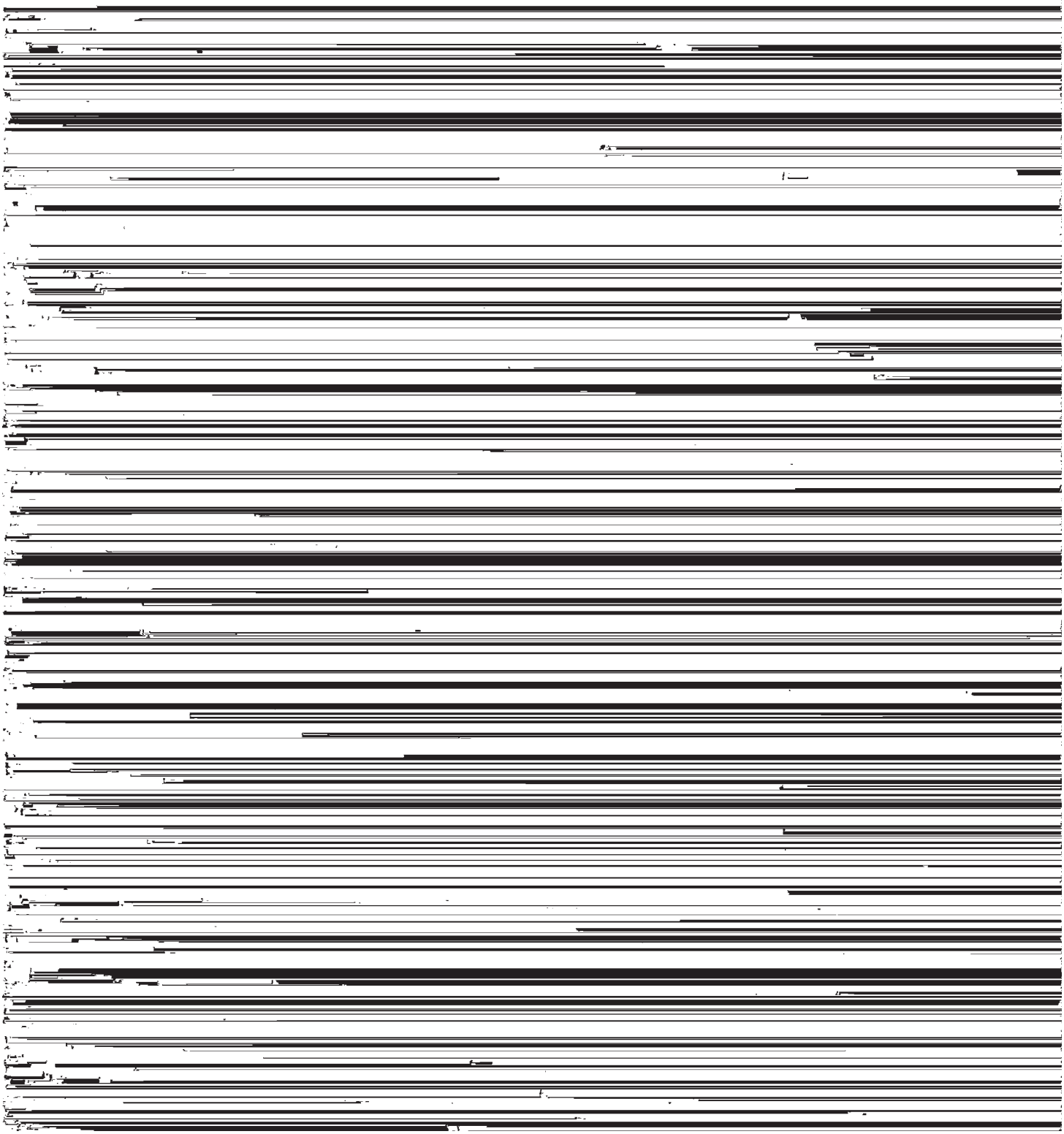
Mapped with this soil are small areas where all of the original surface layer has been lost through erosion. The present surface layer consists of reddish material from the subsoil. Also included are small areas where the slope is as much as 17 percent.

Carnegie very fine sandy loam, 8 to 12 percent slopes, eroded, is better suited to woods or pasture than to tilled

A_0—2 inches to 0, layer of partly decomposed pine needles and grass.

A_1—0 to 3 inches, dark grayish-brown (2.5Y 4/2) light fine sandy loam; weak, fine, crumb structure; very friable; extremely acid; clear, wavy boundary.

A_2—3 to 9 inches, light olive-brown (2.5Y 5/4) light fine sandy loam; few, fine, faint mottles of dark grayish-brown (2.5Y 4/2) stains caused by organic matter; weak, fine,



Cuthbert fine sandy loam, 2 to 5 percent slopes, is low in fertility and in content of organic matter. It is very strongly acid. Water infiltrates slowly, permeability is slow or very slow, and runoff is medium. The soil is moderately well drained, and its capacity for storing available moisture is low.

This soil is poorly suited to cultivated crops. All of it is wooded. (Capability unit IVs–19; woodland suitability group 7; Coastal Plain Hills range site.)

Cuthbert fine sandy loam, 8 to 12 percent slopes (CtD).—This soil has a thinner and more variable solum than Cuthbert fine sandy loam, 5 to 8 percent slopes. Runoff is rapid, and the hazard of erosion is great.

Mapped with this soil are a few areas where 25 to 100 percent of the fine sandy loam in the surface layer has been lost through erosion. Where all of the original surface layer has been lost, the present surface layer is mottled sandy clay or silty clay that was formerly part of the subsoil. These areas are too small to be mapped separately.

Cuthbert fine sandy loam, 8 to 12 percent slopes, is low in fertility and in content of organic matter. It is very strongly acid. Water infiltrates slowly, and permeability is slow or very slow. Runoff is rapid, and the soil has a low available moisture-holding capacity.

This soil is probably best suited to trees. Use of this soil for crops is limited by slow or very slow permeability, strong slope, and the serious hazard of erosion. All of the areas are wooded. (Capability unit VIe–19; woodland suitability group 7; Coastal Plain Hills range site.)

Cuthbert fine sandy loam, 12 to 17 percent slopes (CtE).—This soil has a thinner and more variable solum than Cuthbert fine sandy loam, 5 to 8 percent slopes. Mapped with this soil are a few areas where 25 to 75 percent of the original surface layer has been lost through erosion, and in places there are a few gullies.

This soil is low in fertility and in content of organic matter, and it is very strongly acid. Water infiltrates very slowly. Permeability is very slow, and the available moisture-holding capacity is low.

This soil is probably best suited to trees. Its use for crops is limited by extreme slope, very rapid runoff, very slow permeability, and the hazard of erosion. All of the soil is wooded. (Capability unit VIIe–19; woodland suitability group 7; Coastal Plain Hills range site.)

Cuthbert, Bowie, and Sunsweet soils, 5 to 8 percent slopes (CuC).—This undifferentiated soil group consists of areas of Cuthbert, Bowie, and Sunsweet soils so mixed that it is impractical to show them separately on a map. A profile that is representative of the soils of each of these series is described under the name of the series.

These soils have a shallow root zone. They are low in is wooded. (Capability unit VIe–19; woodland suitability group 7; Coastal Plain Hills range site.)

Cuthbert , Bowie, and Sunsweet soils, 8 to 12 percent slopes (CuD).—On these soils runoff is more rapid than on Cuthbert, Bowie, and Sunsweet soils, 5 to 8 percent slopes; therefore, the hazard of erosion is greater.

These soils are low in fertility, and they contain little organic matter. They are strongly acid. Water infiltrates slowly, and permeability is slow or very slow. The capacity for storing available moisture is low.

These soils are probably best suited to pine trees. Their use for crops is limited by their strong slope, their slow or very slow permeability, and the serious hazard of erosion. All of the acreage is wooded. (Capability unit VIe–19; woodland suitability group 7; Coastal Plain Hills range site.)

Cuthbert, Bowie, and Sunsweet soils, 12 to 17 percent slopes, eroded (CuE2).—These soils have lost much of their original surface layer through erosion. In most places the present surface layer consists of a mixture of soil material from the original surface layer and the subsoil. It is grayish-brown to yellowish-brown fine sandy loam to clay loam, and it is at a depth of 4 to 6 inches. In some places all of the original surface layer has been lost and the present surface layer is yellow to strong-brown, very firm or firm sandy clay loam to clay that was formerly part of the subsoil.

These soils are low in content of organic matter and in plant nutrients. Water infiltrates slowly and permeability is slow. Runoff is rapid, and the capacity for storing available moisture is low. In much of the acreage, these soils are difficult to work.

These soils are not suited to cultivated crops or to pasture. All of the acreage was once cultivated, but now it is all wooded. (Capability unit VIIe–19; woodland suitability group 7; Coastal Plain Hills range site.)

Eustis Series

The Eustis series consists of deep, excessively drained soils that are strongly acid. The soils developed in unconsolidated loamy fine sand and sand and are on uplands of the Coastal Plain. They are underlain by red sandy loam to sandy clay loam at a depth of 35 to 60 inches or more. Their slope ranges from 0 to 12 percent, but in most places it is between 0 and 5 percent.

The surface layer of these soils is dark grayish-brown to dark-brown loamy fine sand. The subsoil is strong-brown to yellowish-red loamy fine sand.

The largest acreage of Eustis soils is in the vicinity of Silverhill and Elberta, but small areas occur through-

Eustis loamy fine sand, 0 to 5 percent slopes (EuB).—This is a deep, excessively drained soil on uplands of the Coastal Plain. The following describes a profile in a moist, wooded area:

A_o—2 inches to 0, grass and pine straw that are partly decomposed.
A_1—0 to 5 inches, dark grayish-brown (10YR 4/2) loamy fine sand; weak, fine, crumb structure; loose when dry, very friable when moist; many fine roots; strongly acid; abrupt, wavy boundary.
AC—5 to 17 inches, yellowish-red (5YR 5/6) loamy fine sand; weak, fine, crumb structure; loose when dry, very friable when moist; common fine roots; strongly acid; gradual, wavy boundary.
C_1—17 to 37 inches, yellowish-red (5YR 5/8) loamy fine sand; weak, fine, crumb structure; very friable; few roots; strongly acid; clear, wavy boundary.
D—37 to 54 inches +, red (2.5YR 4/8) heavy sandy loam; weak, fine, subangular blocky structure; soft when dry, friable when moist; strongly acid.

The surface layer of this soil ranges from brown to dark brown in areas that are cultivated to very dark grayish brown in wooded areas. Below it, the soil material is strong brown to yellowish red. In some areas there are a few small iron concretions throughout the profile.

Mapped with this soil are a few areas that have a surface layer of dark reddish brown overlying soil material that is red to dark red. Also included are areas that have a surface layer of loamy sand to sand that overlies loamy sand. In some included areas the loamy fine sand overlies a finer textured material, which is at a depth of less than 30 inches. The included areas are too small to be mapped separately.

Eustis loamy fine sand, 0 to 5 percent slopes, is low in fertility and in content of organic matter. Its capacity for storing available moisture is low or very low. Water infiltrates rapidly and permeability is rapid; therefore, runoff is slow. The soil has good tilth and is easy to work, but it is droughty and susceptible to severe leaching. Sheet erosion presents a slight to moderate hazard, and there are a few gullies in places. This soil can be cultivated soon after rains, and it does not become hard when dry. The supply of plant nutrients and the water-holding capacity can be increased by turning under a green-manure crop, adding other organic matter, and applying fertilizer frequently. The soil responds fairly well to good management, particularly if fertilizer and organic matter are added.

This soil is well suited to trees and is fairly well suited to pasture and tilled crops. About 30 percent of it is in cultivated crops or pasture, and the rest is wooded. Yields are low, and the number of suitable crops that can be grown is limited by the very low fertility of the soil, the low or very low moisture-holding capacity, and the susceptibility to drought and leaching. (Capability

Figure 5.—**A deep gully in an area of Eustis loamy fine sand, 8 to 12 percent slopes. Water that drains into the head of the gully must be diverted before the soil material in the gully can be stabilized.**

limited by its very low fertility, low or very low moisture-holding capacity, susceptibility to drought and leaching, and susceptibility to erosion. About 80 percent of it is wooded, 10 percent is in cultivated crops, and the rest is in pasture. (Capability unit IVs–11; woodland suitability group 1; Coastal Plain Sands range site.)

Eustis loamy fine sand, 8 to 12 percent slopes (EuD).—This soil has much more rapid runoff and greater susceptibility to erosion than Eustis loamy fine sand, 0 to 5 percent slopes.

Mapped with this soil are small areas that have a few deep gullies (fig. 5) and large outcrops of sandstone.

Eustic loamy fine sand, 5 to 8 percent slopes, is probably best suited to trees, but it can be used for pasture if it is managed well. All of it is wooded. (Capability unit VIs–11; woodland suitability group 1; Coastal Plain Sands range site.)

Faceville Series

The Faceville series consists of deep, well-drained soils that are very strongly acid. The soils developed in unconsolidated loam to sandy clay loam and are on uplands of the Coastal Plain. Their slope ranges from 0 to 8 percent, but in most places it is between 0 and 5 percent. The surface layer of these soils is brown or dark

The natural vegetation on the Faceville soils is long-

Faceville fine sandy loam, 2 to 5 percent slopes (FcB).—This soil has a thinner solum than Faceville fine

Flint Series

The Flint series consists of moderately deep, moderately well drained soils on the terraces of streams. The soils developed in old alluvium consisting of silty clay to clay. Their slope ranges from 2 to 5 percent.

The surface layer of these soils is very dark gray silt loam. Their subsoil is yellowish-red silty clay, and their substratum is mottled clay.

The Flint soils are mainly in the northwestern part of [redacted] higher areas, the Wahee soil is in the intermediate positions, and the Leaf soil is in small depressions and in sloughs. All of the acreage is in the northwestern part of the county.

These soils are low in fertility and contain little organic matter. Runoff is medium to very slow. Internal drainage and permeability are very slow.

If these soils are well managed, they can be used for some of the crops commonly grown in the county. The

Mapped with this soil are a few areas that have a surface layer of loamy sand, sandy loam, very fine sandy loam, or loam. These areas are too small to be mapped

The natural vegetation on the Grady soils is cypress and gum.

Grady soils (Gr).—The Grady soils in this county are

Greenville Series

The Greenville series consists of very deep, well-drained soils that are strongly acid or very strongly acid. The soils developed in clay loam of the Coastal Plain. Their slope ranges from 0 to 8 percent, but in most places it is between 0 and 2 percent.

The surface layer of these soils is dark-brown to dark reddish-brown loam. Their subsoil is red to dark-red sandy clay loam to sandy clay.

The Greenville soils are mainly near Belforest, and they are associated with the Magnolia, Red Bay, and Carnegie soils. Their surface layer is darker and redder than that of the Magnolia soils. The Greenville soils are similar to the Red Bay soils in color, drainage, and depth, but they have a finer textured subsoil. Their surface layer is darker and redder than that of the Carnegie soils, but they have fewer iron-manganese concretions on the surface and throughout the profile.

The Greenville soils respond well to good management. Their response is particularly good if fertilizer and organic matter are added.

The natural vegetation on these soils is longleaf pine

Figure 8.—**A grove of pecan trees and a pasture of crimson clover and ryegrass on Greenville loam, 0 to 2 percent slopes. The crimson clover and ryegrass can be grazed in winter.**

Mapped with this soil are areas that have lost all of their original surface layer through erosion. These areas are too small to be mapped separately.

Greenville loam, 5 to 8 percent slopes, eroded, is suited to bahiagrass, bermudagrass, and other deep-rooted pasture plants. It is also suited to winter grasses and legumes, such as ryegrass and crimson clover. If the soil is cultivated, practices to control supplementary water are needed. Sod crops need to be grown in the rotation about two-thirds of the time to protect this soil from further erosion, to conserve moisture, and to maintain or increase the supply of organic matter. Yields are generally lower on this soil than on Greenville loam, 0 to 2 percent slopes. About half of the soil is in tilled crops, and about half is in pasture. (Capability unit IIIe–11; woodland suitability group 5; Coastal Plain Hills range site.)

Gullied Land

This miscellaneous land type consists of areas that have

Hyde and Bayboro soils and Muck (Hb).—Areas of this undifferentiated mapping unit consist of all, or only one or two, of the Hyde, Bayboro, and Muck soils because mapping the three soils separately is impractical. In some areas one soil is dominant. Generally, about 80 percent of an area consists of Muck; 10 percent, of Hyde soils; and 10 percent, of Bayboro soils.

The soils are in low areas or in depressions. They receive water as the result of overflow or seepage from adjacent, higher lying areas.

The Hyde soils have a mucky surface layer that is nearly black and is 10 to 18 inches thick. The surface layer of the Bayboro soils is also nearly black, but it contains much less organic matter than that of the Hyde soils. Muck is made up of organic material to a variable depth of 1 to 6 feet.

These soils are extremely acid, very poorly drained, and nearly level. They are saturated, and water stands on them much of the time.

The natural vegetation on these soils is cypress, slash

clay loam on uplands. They have iron concretions throughout the profile and have a moderately developed fragipan. Their slope ranges from 0 to 5 percent.

The surface layer of these soils is very dark grayish-brown loam. Their subsoil is brownish-yellow to yellowish-brown sandy clay loam or clay loam.

The Irvington soils are associated with the Marlboro, Tifton, Robertsdale, and Grady soils. They are less well drained that the Tifton and Marlboro soils, which do not have a fragipan. In addition, they contain iron concretions, which are lacking in the Marlboro soils. The Irvington soils are better drained that the Robertsdale and Grady soils.

The natural vegetation on the Irvington soils is longleaf pine, slash pine, loblolly pine, gallberry, sweetgum, and oak.

Irvington loam, 0 to 2 percent slopes (IrA).—This moderately deep, moderately well drained soil is on uplands. The following describes a profile in a moist, cultivated area 2 miles southeast of Robertsdale (SE¼SE¼ sec. 9, T. 6 S., R. 4 E.):

A_p—0 to 8 inches, very dark grayish-brown (2.5Y 3/2), gray (N 6/0, dry) loam; weak, medium, crumb structure; very friable; a few iron concretions ¼ to ½ inch in

delayed after long rainy periods. About 75 percent of this soil is cultivated; the rest is in trees and pasture. (Capability unit IIw–16; woodland suitability group 8; Coastal Plain Flatwoods range site.)

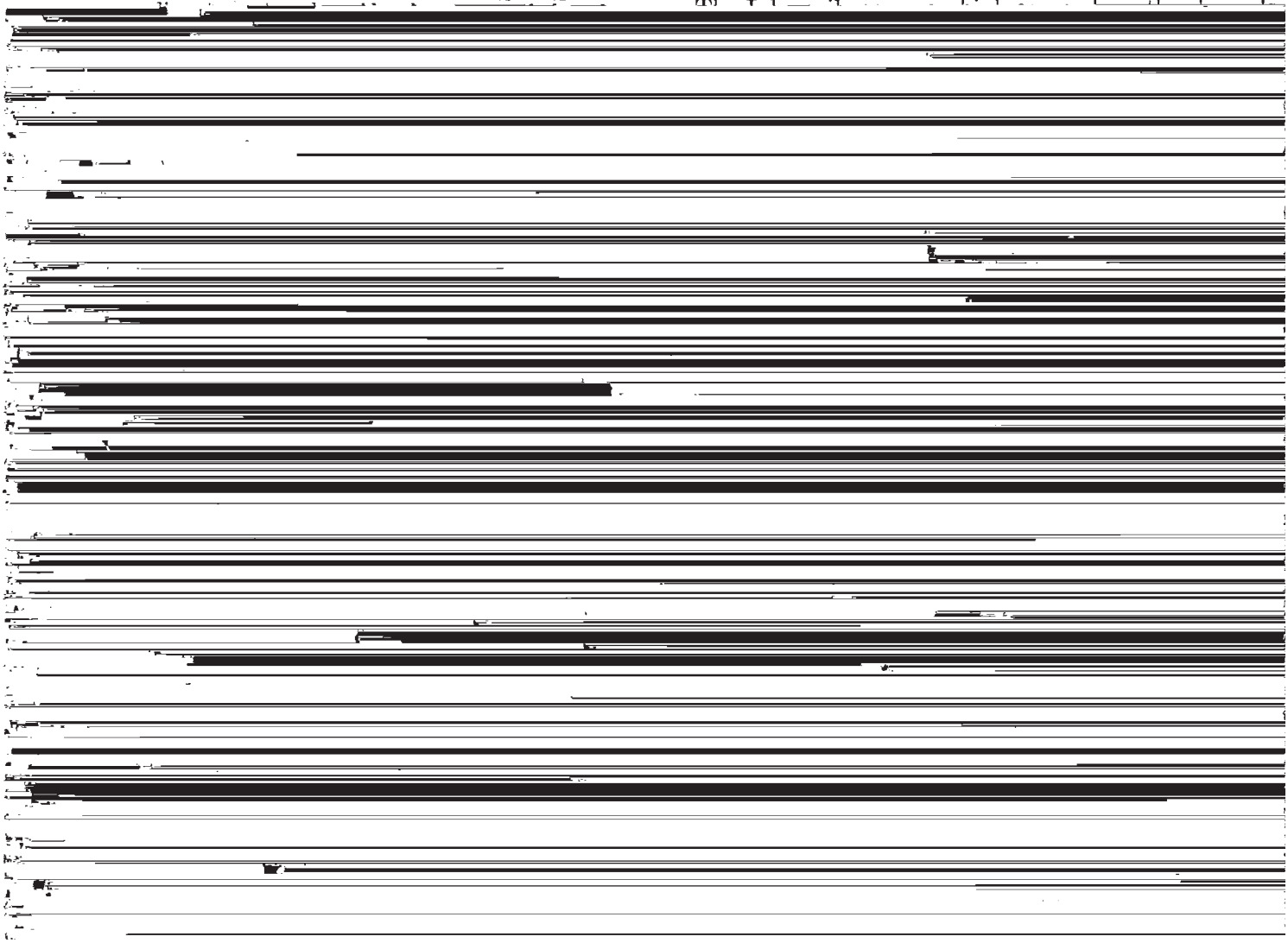
Irvington loam, 2 to 5 percent slopes (IrB).—This soil has stronger slopes than Irvington loam, 0 to 2 percent slopes, but the hazard of erosion is slight. It has medium runoff and a moderate capacity for storing available moisture.

Most of this soil is in trees, but some of the acreage is used for cultivated crops and pasture. (Capability unit IIe–16; woodland suitability group 8; Coastal Plain Flatwoods range site.)

Iuka Series

The Iuka series consists of deep, moderately well drained soils that are strongly acid or very strongly acid. The soils developed in sandy and clayey alluvium and are on the flood plains of streams. Their slope is between 0 and 2 percent.

The surface layer of these soils is dark-brown silt loam. It is underlain by dark yellowish-brown silty clay mottled with gray and yellowish brown.



Plain Bottom Lands (Canebreaks-Hardwoods) range site.)

Izagora Series

The Izagora series consists of moderately deep, moderately well drained soils that are strongly acid. The soils are on terraces along streams of the Coastal Plain. They developed in old, sandy alluvium that overlies clayey alluvium. Their slope ranges from 0 to 5 percent, but in most places it is between 2 and 5 percent.

The surface layer of these soils is dark grayish-brown very fine sandy loam. Their subsoil is light yellowish-brown fine sandy clay loam, and their substratum is highly mottled sandy clay to clay.

The Izagora soils are along the major creeks in the

erate in the B horizon and slow in the C horizon. Runoff is medium, and the capacity for storing available moisture is moderate to low. The soil is easily tilled. There is a slight hazard of erosion.

This soil is limited to some extent by the slight hazard of erosion as well as by the slight need for drainage. It can be used for cultivated crops if an adequate system to dispose of excess water is installed. All of this soil is in trees, and some of the areas have been cut over. (Capability unit IIe–16; woodland suitability group 6; Coastal Plain Flatwoods range site.)

Izagora very fine sandy loam, 0 to 2 percent slopes (IzA).—This soil is finer textured throughout than Izagora very fine sandy loam, 2 to 5 percent slopes, and its surface layer is darker. The subsoil is paler, mottles are nearer

C_1—41 to 50 inches, yellowish-brown (10YR 5/8) sandy clay loam; common, fine, faint mottles of strong brown and pale yellow; moderate, medium, subangular blocky structure; friable; strongly acid; gradual, wavy boundary.

C_2—50 inches +, mottled pale-yellow and yellowish-brown loamy sand; few, fine, distinct mottles; single grain; medium acid.

The surface layer of this soil ranges from light yellowish brown to dark grayish brown or light brownish gray. The subsoil is yellow to yellowish brown, and its texture ranges from light sandy clay loam to heavy sandy clay loam.

Mapped with this soil are a few areas where the surface layer is loamy sand. These areas are too small to be mapped separately.

Kalmia fine sandy loam, 0 to 2 percent slopes, is low in natural fertility and medium in content of organic matter. Permeability is moderate, and the rate of infiltration is moderate. Runoff is slow, and the capacity for storing available moisture is low to moderate. There is no hazard of erosion.

This soil is suited to general farm crops, pasture, and trees. About 60 percent of the acreage is in cultivated crops, 20 percent is in pasture, and 20 percent is in trees. (Capability unit I–12; woodland suitability group 5; Coastal Plain Flatwoods range site.)

Kalmia fine sandy loam, 2 to 5 percent slopes (KaB).—This soil has a thinner solum than Kalmia fine sandy loam, 0 to 2 percent slopes, and the capacity for storing available moisture is lower. Runoff is medium, and water infiltrates more slowly.

The following describes a profile in a moist pasture about 3 miles north of Foley (SE¼NE¼ sec. 17, T. 7 S., R. 4 E.):

A_p—0 to 6 inches, dark grayish-brown (2.5Y 4/2) loamy fine sand; weak, fine, crumb structure; very friable; many fine grass roots; strongly acid; abrupt, smooth boundary.

AC—6 to 18 inches, light yellowish-brown (2.5Y 6/4) loamy fine sand; weak, fine, crumb structure; very friable; strongly acid or very strongly acid; gradual, wavy boundary.

C_1—18 to 34 inches, light yellowish-brown (2.5Y 6/4) loamy fine sand; few, fine, distinct mottles of yellowish brown (10YR 5/8) and light gray (10YR 7/2); single grain; very friable; strongly acid or very strongly acid; gradual, wavy boundary.

C_2—34 to 52 inches, mottled yellowish-brown (10YR 5/8), light-gray (10YR 7/2), and light yellowish-brown (2.5Y 6/4) loamy fine sand; many, coarse, distinct mottles; single grain; very friable.

The surface layer of this soil ranges from olive or gray to dark grayish brown. Just below the surface layer, the soil material is pale olive to yellowish brown and the texture ranges from loamy sand to loamy very fine sand. The texture of the substratum ranges from loamy sand to sandy loam. In some places the soil material is slightly compacted at a depth below 30 inches.

Mapped with this soil are a few areas where the surface layer is sand or loamy very fine sand. These areas are too small to be mapped separately.

Klej loamy fine sand, 0 to 5 percent slopes, is very low in natural fertility and low in content of organic matter. Its capacity for storing available moisture [illegible]

brownish-yellow to dark yellowish-brown loamy fine sand. The loamy fine sand overlies finer textured material at a depth of 30 to 120 inches or more.

The Lakeland soils occur throughout the county. These

fine sand, 0 to 5 percent slopes. Runoff is medium. The hazard of erosion is slight to moderate.

Mapped with this soil are a few areas that have shallow to deep gullies. These areas are too small to be mapped

very poorly drained like Muck. They also lack the distinct pan, cemented with organic matter, that is in the Leon soils.

A_1—0 to 2 inches, dark grayish-brown (2.5Y 4/2) silt loam; weak, fine, granular structure; friable; strongly acid; abrupt, smooth boundary.

B_{1g}—2 to 17 inches, mottled gray (2.5Y 5/0) and olive-yellow

The surface layer of this soil is very dark gray to black. Depth to the pan that is cemented with organic matter ranges from 15 to 30 inches, and the thickness of the pan ranges from 2 to 15 inches. In some places there are three or four pans in the profile, separated by layers of loose, gray sand.

Mapped with this soil are areas that have 5 to 10 inches of muck over the sandy surface layer. These areas are too small to be mapped separately.

Leon sand is very low in fertility and low in content of organic matter. The capacity for storing available moisture is very low, permeability is slow to rapid, and runoff is very slow. Water infiltrates rapidly.

This soil is probably best suited to trees because of its low natural fertility, poor drainage, and sandy texture. A high water table keeps it saturated throughout most of the year. All of the acreage is wooded. (Capability unit Vw–11; woodland suitability group 11; Coastal Plain Flatwoods range site.)

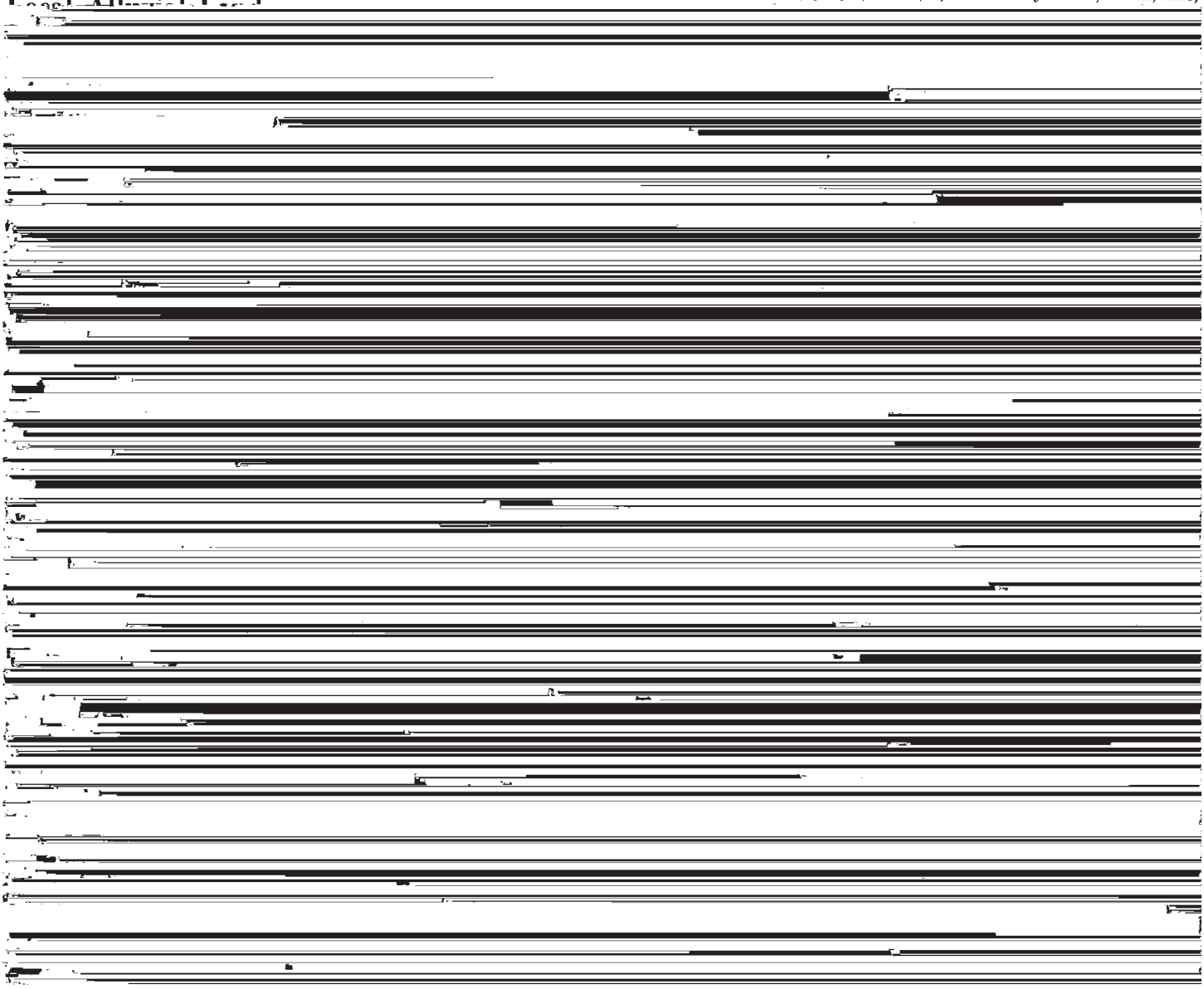
The surface layer of these soils is gray to black fine sandy loam. Their subsoil is pale yellow to olive yellow and is mottled.

The Lynchburg soils are near Elberta, Summerdale, and Foley, where they are associated with the Goldsboro, Rains, Plummer, Scranton, and Klej soils. They have a texture similar to that of the Goldsboro and Rains soils, but they are not so well drained as the Goldsboro soils and are better drained than the Rains. The Lynchburg soils are finer textured throughout than the Plummer, Scranton, and Klej soils.

The natural vegetation on the Lynchburg soils is largely longleaf pine, slash pine, and loblolly pine. The understory consists of gallberry bushes, dogwoods, briers, and wiregrass.

Lynchburg fine sandy loam, 0 to 2 percent slopes (lyA).—This is a deep, somewhat poorly drained soil of the uplands. The following describes a profile in a moist, wooded area:

A_1—0 to 2 inches, gray (2.5Y 5/0) fine sandy loam; weak, fine,



crops. (Capability unit IIe–16; woodland suitability group 6; Coastal Plain Flatwoods range site.)

Lynchburg fine sandy loam, 5 to 8 percent slopes (LyC).—The profile of this soil is like that of Lynchburg fine sandy loam, 0 to 2 percent slopes, but the C horizon is generally much finer textured. Also, in places fragments of sandstone cemented with iron occur throughout the profile. The soil also has more rapid runoff, and there is a greater amount of seepage. The hazard of erosion is slight to moderate.

This soil is probably best suited to pasture, but it is also well suited to trees. The soil is difficult to work because of its poor drainage, seepage, and rather strong slope. Nearly all of it is wooded. (Capability unit IIIe–16; woodland suitability group 6; Coastal Plain Flatwoods range site.)

Made Land

A_p—0 to 7 inches, dark-brown (10YR 3/3) fine sandy loam; weak, fine, crumb structure; friable; strongly acid; abrupt, smooth boundary.

B_1—7 to 11 inches, dark yellowish-brown (10YR 4/4) sandy clay loam; weak, fine, subangular blocky structure; friable; very strongly acid; gradual, wavy boundary.

B_{21}—11 to 23 inches, red (2.5YR 4/8) fine sandy clay loam; weak, fine, subangular blocky structure; friable; very strongly acid; gradual, wavy boundary.

B_{22}—23 to 54 inches, red (10R 4/8) sandy clay loam or clay loam; weak, fine, subangular blocky structure; friable or firm; very strongly acid; gradual, wavy boundary.

B_3—54 to 66 inches +, red (10R 4/8) fine sandy clay loam; few, fine, faint, yellow (10YR 8/6) mottles; weak, fine, subangular blocky structure; friable; very strongly acid.

The color of the surface layer ranges from dark brown to very dark grayish brown. The texture of the subsoil ranges from sandy clay loam to sandy clay. In places there are a few, small iron concretions on the surface and in the profile.

Mapped with this soil are a few areas where the surface

of fine sandy loam from the original surface layer and of yellowish-brown sandy clay loam from the upper part of the subsoil.

This soil has a slower rate of infiltration than Magnolia fine sandy loam, 0 to 2 percent slopes. Its capacity for storing available moisture is also lower, runoff is medium, and there is a moderate hazard of erosion.

Mapped with this soil are a few areas that are not eroded. Also included are areas where all of the original surface layer has been lost through erosion and the present surface layer is red fine sandy clay loam from the former subsoil. These areas are too small to be mapped separately.

Use of Magnolia fine sandy loam, 5 to 8 percent slopes, eroded, for cultivated crops is limited by the medium runoff, low rate of infiltration, low moisture-holding capacity, present erosion, and the moderate hazard of further erosion. All of this soil is in pasture and trees. (Capability unit IIIe-11; woodland suitability group 5; Coastal Plain Hills range site.)

Mantachie Series

The Mantachie series consists of moderately deep, some-

firm; soft, black concretions and mica flakes; very strongly acid.

The texture of the surface layer ranges from silty clay loam to silt loam. The surface layer is thinner in areas near Wet clayey alluvial land than in other areas. The texture of the soil material below the surface layer is silty clay or clay.

This soil is moderate to high in natural fertility, and it contains a moderate amount of organic matter. Water infiltrates slowly, and permeability is slow or very slow. There is little or no hazard of erosion, but the soils are flooded each year for 2 to 3 months. These soils are fairly difficult to till. The period of time that they can be plowed is very short because they are either too wet or too dry.

Use of this soil is limited to trees and pasture by the fine texture of the surface layer, poor drainage, and the hazard of frequent flooding for long periods. The soil can be used for cultivated crops if it is protected by levees and if drainage ditches are provided to remove excess surface water. All of this soil is in hardwood trees. (Capability unit IVw-11; woodland suitability group 10; Coastal Plain Bottom Lands (Canebreaks-Hardwoods) range site.)

able; strongly acid or very strongly acid; gradual, wavy boundary.

B_3—32 to 52 inches, yellowish-brown (10YR 5/8) fine sandy clay loam; few, fine, faint mottles of yellow (10YR 8/6); weak, fine, subangular blocky structure; firm; strongly acid or very strongly acid; gradual, wavy boundary.

C—52 to 60 inches +, yellowish-brown (10YR 5/8) fine sandy clay loam; few, fine, faint mottles of yellow (10YR 8/6) and strong brown (7.5YR 5/8); massive; very firm; weakly cemented; strongly acid or very strongly acid; gradual, wavy boundary.

The surface layer of this soil ranges from very dark gray or very dark grayish brown to grayish brown or brown. The subsoil is yellowish brown to strong brown, and its texture ranges from loam or clay loam to fine sandy clay loam. Depth to distinct mottling ranges from 27 to 38 inches. Where this soil is adjacent to the Tifton soils, it contains a few iron concretions; where it is adjacent to the Norfolk soils, the surface layer is thicker and more sandy.

fine sandy loam, 0 to 2 percent slopes, and the surface layer is thinner, browner, and more sandy. Runoff is also more rapid, and there is a greater hazard of erosion.

This soil is well suited to cultivated crops, pasture, and trees. If it is cultivated, supplementary practices to control water are needed to protect it from erosion. The soil responds well to good management, particularly if adequate amounts of fertilizer are added. Nearly all of the acreage is wooded. (Capability unit IIe–11; woodland suitability group 5; Coastal Plain Hills range site.)

Marlboro very fine sandy loam, 2 to 5 percent slopes, eroded (MrB2).—This soil has a somewhat thinner solum than Marlboro very fine sandy loam, 0 to 2 percent slopes, and a surface layer that is lighter colored and thinner. The surface layer is grayish-brown to yellowish-brown very fine sandy loam and is 4 to 6 inches thick. It consists of a mixture of material from the original surface layer and from the subsoil. In places all of the original surface layer has been lost through erosion and the pre-

The natural vegetation on the Myatt soils is mainly slash pine, longleaf pine, sweetgum, and cypress. The understory is gallberry.

Myatt very fine sandy loam (My).—This is the only Myatt soil mapped in the county. It is a deep, poorly drained soil on terraces along streams. The following describes a profile in a moist, cutover woods 10 miles north of Stockton (SE¼SW¼ sec. 7, T. 2 N., R. 2 E.):

Klej, Lynchburg, and Marlboro soils. Their subsoil is yellowish brown rather than yellowish red or strong brown like that of the Ruston soils. The Norfolk soils are better drained than the Goldsboro and Lynchburg soils. Their subsoil is finer textured than that of the Lakeland and Klej soils, and it is coarser textured than that of the Marlboro soils. The surface layer of the Norfolk soils is thicker than that of the Marlboro soils.

Norfolk fine sandy loam, 0 to 2 percent slopes (NoA).—This soil has a thicker surface layer and thicker solum than Norfolk fine sandy loam, 2 to 5 percent slopes. Runoff is slower, and the capacity for storing available moisture is higher. There is less hazard of erosion.

The soil is suited to the same crops as Norfolk fine sandy loam, 2 to 5 percent slopes. It responds well to good management, particularly if adequate amounts of fertilizer are added. A large part of the acreage is in cultivated crops. (Capability unit I–12; woodland suitability group 5; Coastal Plain Hills range site.)

Norfolk fine sandy loam, 2 to 5 percent slopes, eroded (NoB2).—This soil has a thinner surface layer than Norfolk fine sandy loam, 2 to 5 percent slopes. The moisture-holding capacity is lower, and runoff is more rapid. The hazard of erosion is also greater. The present surface layer is a mixture of material from the original surface layer and the upper part of the subsoil. It is more yellowish brown and is finer textured than the original one.

This soil is suited to all of the crops commonly grown in the county. If used for cultivated crops, it requires a system to dispose of excess water and practices to prevent further erosion. Large amounts of organic matter also need to be added. To get the maximum response from the applications of fertilizer, this soil should be kept in sod crops about one-half of the time. (Capability unit IIe–12); woodland suitability group 5; Coastal Plain Hills range site.)

Norfolk fine sandy loam, 5 to 8 percent slopes (NoC).—This soil has a thinner solum than Norfolk fine sandy loam, 2 to 5 percent slopes. Its moisture-holding capacity is also lower, and runoff is more rapid. The hazard of erosion is moderate to severe.

Mapped with this soil are a few areas where the surface layer is a mixture of material from the original surface layer and the upper part of the subsoil. These areas are too small to be mapped separately.

Norfolk fine sandy loam, 5 to 8 percent slopes, is suited to most of the cultivated crops commonly grown in the county. It is especially well suited to sod crops and small grains. If cultivated crops are grown, the soil needs a system that will dispose of excess water and practices that will protect it from erosion. If maximum response from the applications of fertilizer are to be obtained, sod crops need to be grown about two-thirds of the time. Nearly all of the acreage is wooded. (Capability unit

Okenee soils are similar to the Hyde soils, but they are on terraces rather than on first bottoms or in depressions.

The natural vegetation on the Okenee soils is mainly longleaf pine, slash pine, and loblolly pine. The understory is gallberry.

Okenee soils (Ok).—These are the only Okenee soils mapped in the county. They are deep, very poorly drained soils on terraces along streams. The following describes a profile in a moist, wooded area:

A_{11}—0 to 7 inches, black (10YR 2/1) silt loam; weak, fine, crumb structure; very friable when moist, slightly sticky when wet; extremely acid; diffuse boundary.

A_{12}—7 to 16 inches, black (5Y 2/1) silt loam; weak, fine, granular structure; very friable when moist, sticky when wet; extremely acid; clear, wavy boundary.

B_2—16 to 22 inches, very dark gray (5Y 3/1) silty clay loam; weak, medium, subangular blocky structure; friable or firm when moist, sticky when wet; very strongly acid; gradual, wavy boundary.

B_{3g}—22 to 37 inches, dark-gray (5Y 4/1) silty clay loam; few, fine, distinct mottles of strong brown (7.5YR 5/6); weak, medium, subangular blocky structure; firm when moist, sticky when wet; very strongly acid.

C_g—37 to 48 inches +, dark-gray (5Y 4/1) silty clay; few, fine, distinct mottles of yellowish brown (10YR 5/8); moderate, medium, subangular blocky structure; firm when moist, plastic when wet; very strongly acid.

The surface layer of these soils is very dark gray to black. The subsoil is light gray to dark gray, and its texture ranges from sandy loam to silty clay loam. In places the substratum is loamy sand.

These soils are low in natural fertility, but they are high in content of organic matter. Their capacity for storing available moisture is moderate, and permeability is slow to moderate. Water infiltrates slowly. Runoff is very slow, and the soils are sometimes ponded for short periods during rainy seasons.

These soils are probably best suited to trees. They can be used for pasture if they are drained enough to remove the surface water. All of the acreage is wooded. (Capability unit IIIw–11; woodland suitability group 4; Coastal Plain Flatwoods range site.)

Orangeburg Series

The Orangeburg series consists of deep, well-drained soils that are strongly acid or very strongly acid. The soils developed in sandy loam and sandy clay loam on uplands of the Coastal Plain. Their slope ranges from 0 to

one-half mile south of Robertsdale (NW¼SE¼ sec. 7, T. 6 S., R. 4 E.):

A_p—0 to 10 inches, dark grayish-brown (10YR 4/2) fine sandy loam; weak, fine, crumb structure; very friable; strongly acid; abrupt, smooth boundary.

10 to 15 inches, dark yellowish-brown (10YR 4/4) fine

If this soil is used for cultivated crops, a system to dispose of excess water and practices to prevent further erosion are required. To get the maximum response from the applications of fertilizer, the soil should be kept in sod crops about one-half of the time. About half of the acre-

The Plummer soils are along drainageways and are mainly in the southern one-third of the county. They are associated with the Klej and Scranton soils, but they are more poorly drained than those soils. Their drainage is the same as that of the Rains soils, but they have more sand throughout the profile. The Plummer soils lack the layer of dark-colored organic matter that is typical of Muck.

Nearly all of the acreage of Plummer soils is idle or covered with pitcherplants, gallberry bushes, and grasses. There is a sparse growth of slash pine and cypress, and in places there are bay and gum trees.

Plummer loamy sand, 0 to 5 percent slopes (PmB).—This deep, poorly drained soil is on uplands. The following describes a profile in a moist, wooded area 2 miles north of Dyas (SE¼SE¼ sec. 4, T. 1 S., R. 4 E.):

A_0—partly decomposed forest litter.
A_1—0 to 4 inches, dark-gray (5Y 4/1) loamy sand; weak, fine, crumb structure; very friable, nonsticky; abundant fine roots; strongly acid or very strongly acid; clear, smooth boundary.
C_{1g}—4 to 16 inches, gray (5Y 5/1) loamy sand; few, fine, distinct, yellow (5Y 7/8) mottles; weak, fine, crumb structure; very friable, nonsticky; many fine roots; very strongly acid; gradual, wavy boundary.
C_{2g}—16 to 52 inches, light-gray (5Y 7/1) loamy sand; common, fine, distinct mottles of yellow (5Y 7/8) and strong brown (7.5YR 5/8); weak, fine, crumb structure; very friable, nonsticky; abundant fine roots; very strongly acid; abrupt, wavy boundary.
D_{1g}—52 to 64 inches, mottled strong-brown (7.5Y 5/8), light-gray (5Y 7/1), and yellow (5Y 8/8) sandy clay loam; massive; firm, slightly sticky; very strongly acid; abrupt, smooth boundary.
D_{2g}—64 to 96 inches +, mottled light-gray (5Y 7/1), yellow (5Y 8/8), and strong-brown (7.5YR 5/8) clay; massive; extremely firm, very sticky; a few iron concretions one-fourth inch in diameter; very strongly acid.

The surface layer of this soil is dark gray or black. Below the surface layer is light-gray to dark-gray coarse sand to loamy fine sand.

Mapped with this soil are areas where the surface layer is sand or loamy very fine sand. These areas are too small to be mapped separately.

Plummer loamy sand, 0 to 5 percent slopes, is very low in natural fertility and in content of organic matter. Its capacity for storing available moisture is low, and it has rapid permeability. Water infiltrates slowly. The soil has very slow runoff and a high water table. There is little or no hazard of erosion.

This soil is probably the least suitable for agriculture of any soil in the county. Limiting its use for crops are its low fertility, poor drainage, low moisture-holding capacity, rapid permeability, and high water table. Nearly all of the acreage is idle or is thinly wooded. (Capability unit Vw–11; woodland suitability group 4; Coastal Plain Flatwoods range site.)

Plummer loamy sand, 5 to 12 percent slopes (PmC).—This soil has more rapid runoff than Plummer loamy sand, 0 to 5 percent slopes, and there is a slight to moderate fully prepared and if adequate amounts of fertilizer are added frequently. At present, all of the acreage is idle or is very thinly wooded. (Capability unit Vw–11; woodland suitability group 4; Coastal Plain Flatwoods range site.)

Rains Series

The Rains series consists of deep, poorly drained soils that are very strongly acid. The soils developed in sandy loam to sandy clay loam on uplands of the Coastal Plain. They occur in seep areas at the base of slopes and in slight depressions along drainageways. Their slope ranges from 0 to 8 percent, but in most places it is between 0 and 5 percent.

The surface layer of these soils is gray to dark-gray fine sandy loam. Their subsoil is gray fine sandy loam and is underlain by slowly permeable fine sandy clay loam.

The Rains soils are in the southern and eastern parts of the county and are associated with the Plummer and Lynchburg soils. They are finer textured throughout than the Plummer soils, and they are more poorly drained than the Lynchburg soils. The Rains soils are similar to the Myatt soils, but they occur on uplands, and the Myatt soils, on stream terraces.

The natural vegetation on the Rains soils consists of pitcherplants, grasses, sedges, cypresses, gums, slash pines, and pond pines.

Rains fine sandy loam, 0 to 2 percent slopes (RaA).—This deep, poorly drained soil is on uplands. The following describes a profile in a moist pasture 5 miles northeast of Robertsdale (NW¼SW¼ sec. 25, T. 5 S., R. 4 E.):

A_{1p}—0 to 9 inches, dark-gray (10YR 4/1) fine sandy loam; few, fine, distinct, brown (10YR 5/3) mottles; weak, fine, crumb structure; friable; many fine roots; very strongly acid; gradual, wavy boundary.
B_{2g}—9 to 29 inches, gray (5Y 5/1) fine sandy loam; common, fine, distinct mottles of light olive brown (2.5Y 5/4) and strong brown (7.5YR 5/8); weak, medium, subangular blocky structure; friable; few fine roots; very strongly acid; gradual, wavy boundary.
B_{3g}—29 to 42 inches, gray (10YR 5/1) fine sandy clay loam; few, fine, distinct mottles of brownish yellow (10YR 6/8); weak, medium, subangular blocky structure; friable; many old root channels coated with brown; very strongly acid; clear, wavy boundary.
C_{1g}—42 to 70 inches, brownish-yellow (10YR 6/8) fine sandy clay; common, fine, distinct mottles of light gray (10YR 7/1), strong brown (7.5YR 5/8), and yellowish red (5YR 4/8); weak, medium, subangular blocky structure; friable; few fine roots; very strongly acid; gradual, wavy boundary.

The surface layer of this soil is gray to very dark gray. The color of the subsoil ranges from light gray to dark gray, and its texture, from sandy loam to fine sandy clay loam. Mottling ranges from faint to prominent.

Mapped with this soil are areas where the surface layer is very fine sandy loam to loam. Also included are areas that have a surface layer of black, mucky loam. All of these areas are too small to be mapped separately.

Rains fine sandy loam, 0 to 2 percent slopes, is very low

This soil is probably best suited to range or pasture. B2—15 to 21 inches, dark-red (2.5YR 3/6) sandy loam to light

Red Bay fine sandy loam, 2 to 5 percent slopes (RbB).—Although the surface layer of this soil is generally dark brown, its texture is more sandy than that of Red Bay fine sandy loam, 0 to 2 percent slopes. This soil also has more rapid runoff, and there is a slight to moderate hazard of erosion.

This soil is suited to pastures of bahiagrass, Coastal bermudagrass, and other deep-rooted plants. It is also suited to crimson clover and ryegrass, which can be grown during the winter. Use of the soil for cultivated crops is limited by its moderate slope and the slight to moderate hazard of erosion. It can be used for cultivated crops if it is well managed and if a system to dispose of excess water is installed. About 30 percent of the acreage is in tilled crops, 20 percent is in pasture, and half is wooded. (Capability unit IIe–12; woodland suitability group 5; Coastal Plain Hills range site.)

Riverwash

This miscellaneous land type consists of deposits of sand that are mainly in areas along large streams. At times, the areas are covered by water, and their size and shape change each time they are flooded. The soil mate-

ately deep and somewhat poorly drained. The following describes a profile in a moist, cultivated area 2¼ miles southeast of Robertsdale (SW¼SW¼ sec. 8, T. 6 s., R. 4 E.):

A_p—0 to 7 inches, very dark gray (10YR 3/1, moist) or gray (10YR 5/1, dry) loam; weak, medium, crumb structure; very friable; common concretions one-fourth inch in diameter; strongly acid; abrupt, smooth boundary.

B_{21}—7 to 14 inches, olive-yellow (2.5Y 6/6) light clay loam or fine sandy clay loam; few, medium, distinct mottles of strong brown (7.5YR 5/8), yellowish brown (10YR 5/8), and light brownish gray (2.5Y 6/2); weak, fine, subangular blocky structure; very friable; common concretions ¼ to ½ inch in diameter; strongly acid; gradual, wavy boundary.

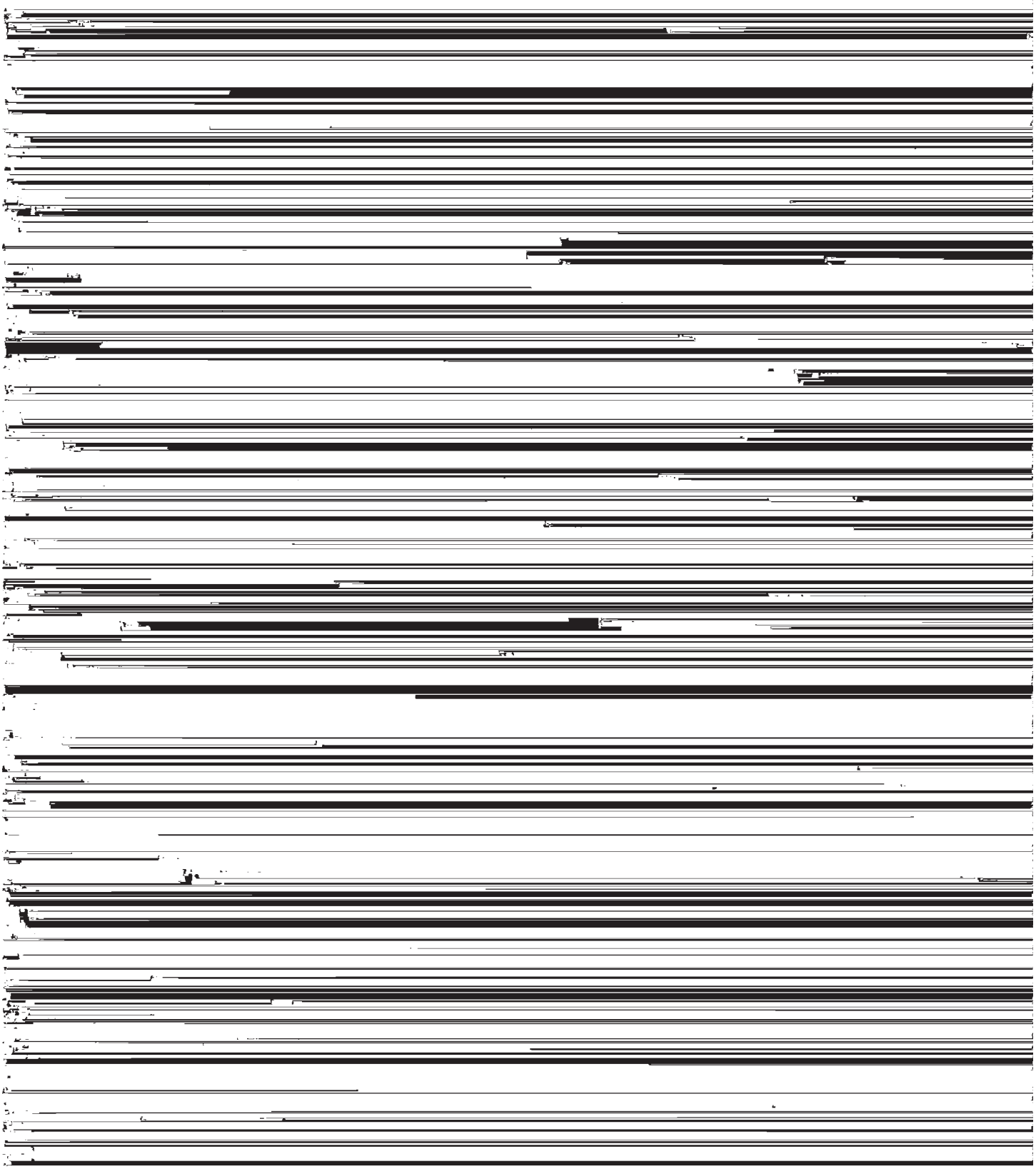
B_{22}—14 to 23 inches, mottled light brownish-gray (2.5 Y 6/2), olive-yellow (2.5Y 6/6), red (2.5YR 4/8), strong-brown (7.5YR 5/8), and yellowish-brown (10YR 5/8) fine sandy clay loam; many, coarse, distinct mottles; weak, medium, subangular blocky structure; friable when moist, very hard when dry; many concretions ⅛ to ½ inch in diameter; a few small, firm peds that have red interiors; strongly acid; gradual, wavy boundary.

B_{3m}—23 to 36 inches, mottled light yellowish-brown (2.5Y 6/4), olive–yellow (2.5Y 6/6), red (2.5YR 4/8), yellowish-red (5YR 4/8), and strong-brown (7.5YR 4/8) fine

Ruston Series

The Ruston series consists of deep, well-drained soils

The medium rate of runoff and the slight hazard of erosion limit this soil when it is used for cultivated crops. About equal acreages are used for cultivated crops, pas-



wooded. (Capability unit IVe–15; woodland suitability group 5; Coastal Plain Hills range site.)

Sandy Alluvial Land

This miscellaneous land type consists of moderately well drained to excessively drained coarse sand and loamy sand. It is on the flood plains of small rivers and creeks. The slope is between 0 and 5 percent.

Sandy alluvial land (Sa).—The soil material in the upper part of this land type is grayish-brown to very dark gray loamy fine sand. It overlies yellowish-brown to nearly white loamy sand. The texture of the soil material and the color and number of the mottles vary from place to place.

Mapped with this miscellaneous land type are areas along the major rivers where the soil material consists of excessively drained loamy fine sand that is free of mottles. The upper part of the soil material in such areas is yellowish-brown to brown loamy fine sand, and the lower part is brown loamy sand. Also included are a few areas of a somewhat poorly drained, medium-textured soil covered by a layer of sandy overwash that is about 18 to 20 inches thick. All of these areas are too small to be mapped separately.

The soil material in Sandy alluvial land is strongly acid, very low in fertility, and low in content of organic matter. It is rapidly or very rapidly permeable. The land is flooded frequently for short periods, and it receives large deposits of sandy overwash.

This land type is probably best suited to trees. Its limi-

The natural vegetation on the Savannah soils is mainly longleaf pine, loblolly pine, and shortleaf pine. There are some scattered dogwoods, oaks, and gum trees.

Savannah very fine sandy loam, 0 to 2 percent slopes (SbA).—This is the only Savannah soil mapped in the county. It is a moderately deep, moderately well drained soil of the uplands. The following describes a profile in a moist, wooded area 2 miles north of Lottie (NW¼NW¼ sec. 12, T. 2 N., R. 4 E.):

A_1—0 to 4 inches, very dark gray (10YR 3/1) very fine sandy loam; weak, fine, crumb structure; friable; very strongly acid; abrupt, smooth boundary.

A_2—4 to 7 inches, light yellowish-brown (2.5Y 6/4) very fine sandy loam; weak, fine, crumb structure; friable; very strongly acid; gradual, wavy boundary.

B_1—7 to 13 inches, yellowish-brown (10YR 5/4 to 5/6) loam; weak, fine, subangular blocky structure; friable; very strongly acid; gradual, wavy boundary.

B_2—13 to 22 inches, yellowish-brown (10YR 5/4 to 5/6) loam; few, fine, faint mottles of yellowish brown (10YR 5/8); weak to medium, fine, subangular blocky, structure; friable; a few, soft iron concretions; very strongly acid; gradual, wavy boundary.

B_{31m}—22 to 31 inches, mottled yellowish-brown (10YR 5/8), olive-yellow (2.5Y 6/6), and light-gray (2.5Y 7/0) loam; weak to medium, fine, subangular blocky structure; compact but friable; a few, soft iron concretions ⅛ to ¼ inch in diameter; very strongly acid; gradual, wavy boundary.

B_{32m}—31 to 47 inches +, mottled light-gray (2.5Y 7/0), yellow (2.5Y 7/8), and strong-brown (7.5YR 5/8) loam; weak to medium, fine, subangular blocky structure; a few, soft iron concretions ¼ to ⅛ inch in diameter; a few, fine pore spaces; compact in place, but friable when removed; very strongly acid.

the Plummer soils. They have more sand throughout the profile than the Lynchburg soils.

The natural vegetation on the Scranton soils is mainly longleaf pine and slash pine. The understory is gallberry and wiregrass.

Scranton loamy fine sand, 0 to 2 percent slopes (ScA).—This deep, somewhat poorly drained soil is on uplands. The following describes a profile in a moist, cutover woods (NE¼SE¼ sec. 16, T. 7 S., R. 4 E.):

A_1—0 to 11 inches, very dark gray (10YR 3/1) to black (10YR 2/1) loamy fine sand; weak, fine, crumb structure; very friable; strongly acid; abrupt, wavy boundary.

C_{11}—11 to 21 inches, pale-yellow (2.5Y 7/4) loamy fine sand; few, fine, distinct mottles of light gray (2.5Y 7/2); single grain; very friable; very strongly acid; gradual, wavy boundary.

C_{12g}—21 to 39 inches, light-gray (5Y 7/1) loamy fine sand; common, medium, distinct mottles of pale yellow (5Y 8/3); single grain; very friable; very strongly acid; gradual, wavy boundary.

C_{2g}—39 to 52 inches +, white (5Y 8/1) sand; few, medium, distinct mottles of pale brown (10YR 6/3); single grain; very friable; very strongly acid.

The surface of this soil is gray or dark gray in areas that have been cultivated. In places the substratum has a texture of sandy loam to sandy clay loam and contains concretions.

Mapped with this soil are a few areas where the surface layer is loamy sand to loamy very fine sand. Also included are areas where the slope is as much as 8 percent. These areas are too small to be mapped separately.

Scranton loamy fine sand, 0 to 2 percent slopes, is low in natural fertility, and its surface layer is medium to high in content of organic matter. Its capacity for storing available moisture is low, and permeability is rapid. Water infiltrates rapidly. The water table is high.

This soil is limited in its use for crops by its somewhat

The surface layer of these soils is gray sand, and the soil material below it is white sand. The characteristics of the profile vary but little from one area to another.

The St. Lucie soils are associated with the Lakewood and Leon soils and with areas of Coastal beaches and Muck. In some areas that parallel beaches, they are mapped with the Leon soils and Muck. The St. Lucie soils lack the layer of organic material that is typical of the Leon soils, and the soil material in the upper part of their profile is lighter colored, deeper, and looser. They lack the yellow and brown color that is common in the Lakewood soils, and they support more vegetation and have more organic matter in the surface layer than Coastal beaches.

The natural vegetation on the St. Lucie soils is mainly slash pine and sand pine. The understory consists of myrtle, rosemary, gallberry, palmetto, and cactus.

St. Lucie sand, 0 to 5 percent slopes (SsB).—This deep, excessivly drained soil is on uplands. The following describes a profile in a moist, wooded area (NW¼NE¼ sec. 4, T. 9 S., R. 5 E.):

A_1—0 to 2 inches, gray (10YR 5/1) sand; single grain; loose; very strongly acid; clear, wavy boundary.

A_2—2 to 9 inches, gray (10YR 6/1) sand; single grain; loose; very strongly acid; gradual, wavy boundary.

C_1—9 to 54 inches, white (10YR 8/1) sand; single grain; loose; very strongly acid; gradual, wavy boundary.

C_2—54 to 66 inches, white (10YR 8/8) mottles; single grain; loose; very strongly acid.

This soil is very low in natural fertility and in content of organic matter. Its capacity for storing available moisture is low, and it has very rapid permeability. There is little or no runoff. Water infiltrates rapidly, and there is little or no hazard of erosion.

This soil is suitable only for homesites and for trees and

gallberry, myrtle, and titi are on the Leon soil and on areas of Muck between the sand ridges.

The soils of this complex have little or no value for agriculture. The St. Lucie soils are used as building sites for

The surface layer of this soil is grayish brown to very dark grayish brown, and it is as much as 13 inches thick. The thickness of the subsoil ranges from 0 to 18 inches within short distances. The number of concretions

Swamp is mainly on bottoms along rivers in the northwestern part of the county. It is probably best suited to trees and wildlife, and all of it is used for those purposes. The land is covered with a thick growth of hardwoods, and there are scattered pines, bushes, and other vegetation. (Capability unit VIIw–11; woodland suitability group 13; Swamps range site.)

Tidal Marsh

This miscellaneous land type is nearly level and is only a few feet above sea level. It is generally covered by or is affected by salt water or brackish water when tides are high.

Tidal marsh (Td).—This land type consists of both fresh-water and salt-water marshes. It occurs along the gulf coast and bayous in the southern and western parts of the county. It is also along the shores of the adjacent islands and along the rivers, creeks, and bayous at the head of the tidal waters on Mobile Bay. At high tide the areas are flooded by salt water from the Gulf of Mexico and by backwater from streams.

In most places the soil material in this land type is gray heavy clay or silty clay that has streaks and mottles of yellow and brown. It is very strongly acid.

Tidal marsh generally has no trees growing on it, but there are a few willows and a dense cover of marsh cane.

across from the Robertsdale School at Robertsdale (SW¼ NW¼ sec. 5, T. 6 S., R. 4 E.):

A_p—0 to 7 inches, dark grayish-brown (10YR 4/2) very fine sandy loam; weak, fine, crumb structure; very friable; many iron concretions ¼ to ½ inch in diameter; many fine roots; very strongly acid; clear, smooth boundary.

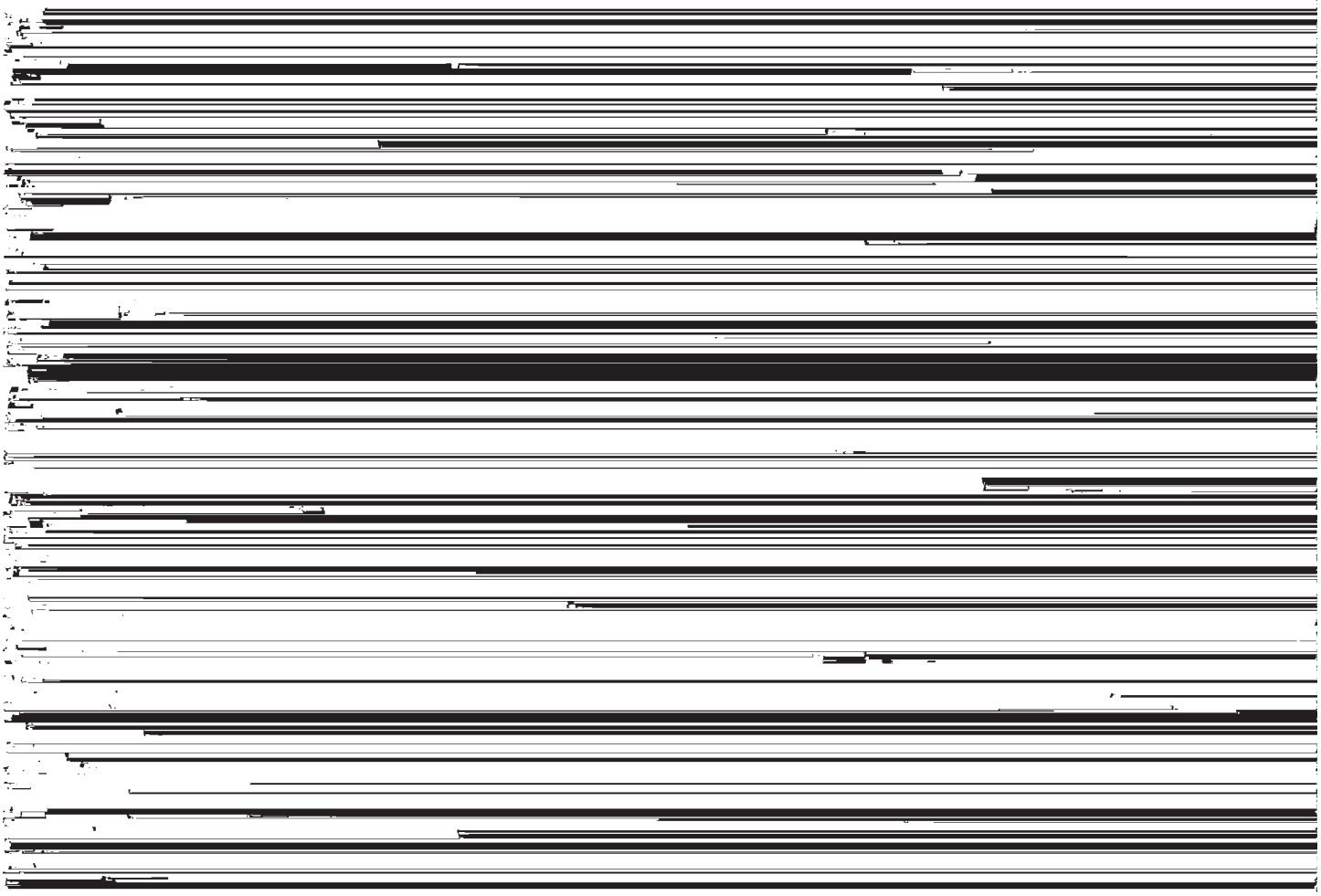
A_2—7 to 15 inches, dark yellowish-brown (10YR 4/4) very fine sandy loam; weak, fine, subangular blocky structure; very friable; many iron concretions ¼ to ½ inch in diameter; many fine roots; very strongly acid; gradual, wavy boundary.

B_2—15 to 35 inches, yellowish-brown (10YR 5/8) sandy clay loam; weak, fine, subangular blocky structure; friable; many iron concretions ¼ to ½ inch in diameter; very strongly acid; gradual, wavy boundary.

B_3—35 to 59 inches, yellowish-brown (10YR 5/8) sandy clay loam; few, fine, faint mottles of strong brown (7.5YR 5/8), brownish yellow (10YR 6/8), and yellowish red (5YR 5/8); weak, medium, subangular blocky structure; friable; many iron concretions ¼ to ½ inch in diameter; very strongly acid; gradual, wavy boundary.

C—59 to 80 inches +, mottled strong-brown (7.5YR 5/8), brownish-yellow (10YR 6/8), red (2.5YR 4/8), and light-gray (10YR 7/2) sandy clay loam; massive; firm; many iron concretions ¼ to ½ inch in diameter; very strongly acid.

The surface layer of this soil is dark grayish brown to dark gray. The subsoil is yellowish brown to strong brown, and its texture ranges from sandy clay loam or clay loam to loam. The number of concretions on the



and slight to moderate hazard of further erosion. Nearly all of the acreage is in cultivated crops or pasture, but pines have been reestablished on a small part. (Capability unit IIe–11; woodland suitability group 5; Coastal Plain Hills range site.)

Tifton very fine sandy loam, 5 to 8 percent slopes (TfC).—This soil has a thinner solum than Tifton very fine sandy loam, 0 to 2 percent slopes, and its capacity for storing available moisture is lower. It has medium runoff, and there is a moderate hazard of erosion.

Use of this soil for crops is limited by its strong slope, medium runoff, low moisture-holding capacity, and the moderate hazard of erosion. Nearly all of it is wooded, but a small part is in pasture. (Capability unit IIIe–11; woodland suitability group 5; Coastal Plain Hills range site.)

Tifton very fine sandy loam, 5 to 8 percent slopes, eroded (TfC2).—This soil has a thinner surface layer and

A_3—3 to 7 inches, light olive-brown (2.5Y 5/6) loam; weak, fine, granular structure; friable; a few small concretions; very strongly acid; gradual, wavy boundary.

B_2—7 to 13 inches, olive-yellow (2.5Y 6/6) silty clay loam; few, fine, distinct mottles of light brownish gray (2.5Y 6/2); moderate, medium, subangular blocky structure; friable or firm; a few small concretions; very strongly acid; gradual, wavy boundary.

B_3—13 to 34 inches, olive-yellow (2.5Y 6/6) silty clay; many, medium, prominent mottles of light brownish gray (2.5Y 6/2) and yellowish red (5YR 5/8); moderate, medium, subangular blocky structure; firm; a few soft concretions; very strongly acid; gradual, wavy boundary.

C—34 to 60 inches, mottled gray (2.5Y 6/0), yellowish-brown (10YR 5/6), and red (2.5YR 4/8) silty clay to clay; mottles are medium and prominent; moderate, medium, subangular blocky structure; very firm; a few small concretions; very strongly acid.

The surface layer of this soil is very dark grayish brown to light gray. In places the B_2 horizon is lacking

mottled dark grayish-brown or mottled gray silty clay or clay. In the areas where drainage is somewhat poor, the soil material is dark grayish brown to mottled gray throughout.

The moderately well drained areas of this land type make up only about 5 percent of the total acreage. They are on low ridges along old stream channels. The areas

Use and Management of the Soils

This section has several main parts. In the first are described the general characteristics of the soils that affect their management, and general management practices that are suitable for all of the soils used for crops and pasture. In the second, the nationwide system of capability classi-

added. Here the average yield of corn per acre during a 30-year period was 5.9 bushels. A complete fertilizer was added regularly to another plot. Here the average yield of corn per acre during the same 30-year period was 67.7 bushels.

All of the soils in the county need lime, especially if legumes are to be grown. The amount of lime needed varies greatly and should be determined by testing the soils. Care should be taken not to add too much lime, particularly on the sandy soils, because plant nutrients are more readily available to crops in a neutral or slightly acid soil. Too, some deficiencies in minor elements, especially zinc, become more pronounced when the soils are overlimed. Special care is necessary to keep from overliming soils on which the pecans or Irish potatoes are to be grown. Lime should be spread on the soils several months before the crop is planted. Then it can react with the soil to correct the acidity before seeding takes place. Liming once every 5 to 10 years is generally adequate.

All of the soils are naturally low in organic matter, and the long frost-free season and humid climate make it impractical to maintain it at a high level. All available crop residues and manure should be returned to the soil. Alternating row crops and pasture in the cropping system and growing winter cover crops on soils where a summer crop is to be grown are practical means of keeping organic

grass or oats, and Coastal bermudagrass, furnish good grazing for dairy cattle, beef cattle, hogs, and sheep. In recent years bahiagrass has come into wide use for pasture. It is particularly well suited to deep, droughty, sandy soils that have a low or very low available moisture-holding capacity. It grows better, however, on the low, moist soils.

Pasture plants are effective in holding the soil in place, and they are inexpensive to grow. They also add organic matter and prevent a sloping soil from eroding. Good pasture requires lime, phosphate, potash, and nitrogen. The kinds and amounts of these plant nutrients and amendments needed can be determined best by soil tests. Maintaining a vigorous cover is essential to a good pasture, and adequate fertilization and controlled grazing are important to this objective.

Many areas of poorly drained soils can be made productive of pasture. Areas of infertile, eroded soils of uplands, however, generally can be used more profitably as woodland than for pasture.

Some soils are cleared that have never been cultivated or were cultivated only long enough to establish a stand of grass. These soils are generally so low in fertility and so steep and erodible that it is difficult to maintain a productive sod and restrain erosion. Nevertheless, many areas of the more clayey soils can be restored or main-

(in some soils the wetness can be partly corrected by artificial drainage); *s* shows that the soil is limited mainly because it is shallow, droughty, or stony, and *c*, used in only some parts of the country, indicates that the chief limitation is a climate that is too cold or too dry.

In class I there are no subclasses, because the soils of this class have few or no limitations. Class V can contain, at the most, only subclasses *w*, *s*, and *c* because the soils in it have little or no suceptibility to erosion but have other limitations that limit their use largely to pasture, range, woodland, or wildlife.

Within the subclasses are the capability units, groups of soils enough alike to be suited to the same crops and pasture plants, to require similar management, and to have similar productivity and other responses to management. Thus, the capability unit is a convenient grouping of soils for making many statements about their management. Capability units are generally identified by numbers as

Unit IIw–12. Deep, moderately well drained, nearly level soil on flood plains; subject to occasional flooding.

Unit IIw–16. Deep and moderately deep, moderately well drained, nearly level soils that have a weak fragipan or a high water table.

Unit IIw–17. Deep, somewhat poorly drained, nearly level soil that has a high water table.

Class III. Soils that have severe limitations that reduce the choice of plants, or require special conservation practices, or both.

Subclass IIIe. Soils that are subject to severe erosion if they are cultivated and not protected.

Unit IIIe–11. Deep, gently sloping soils that have a friable to very firm subsoil.

Unit IIIe–12. Deep, gently sloping soils that have a friable subsoil.

Unit IIIe–15. Moderately deep, moderately well

Subclass Vw. Soils that are too wet for cultivation; drainage or protection not feasible.

Unit Vw–11. Moderately deep or deep, poorly drained, nearly level to sloping soils that have a sandy subsoil.

Unit Vw–12. Deep, moderately well drained to

TABLE 5.—*Approximate acreage and proportionate extent of the soils in each capability unit*

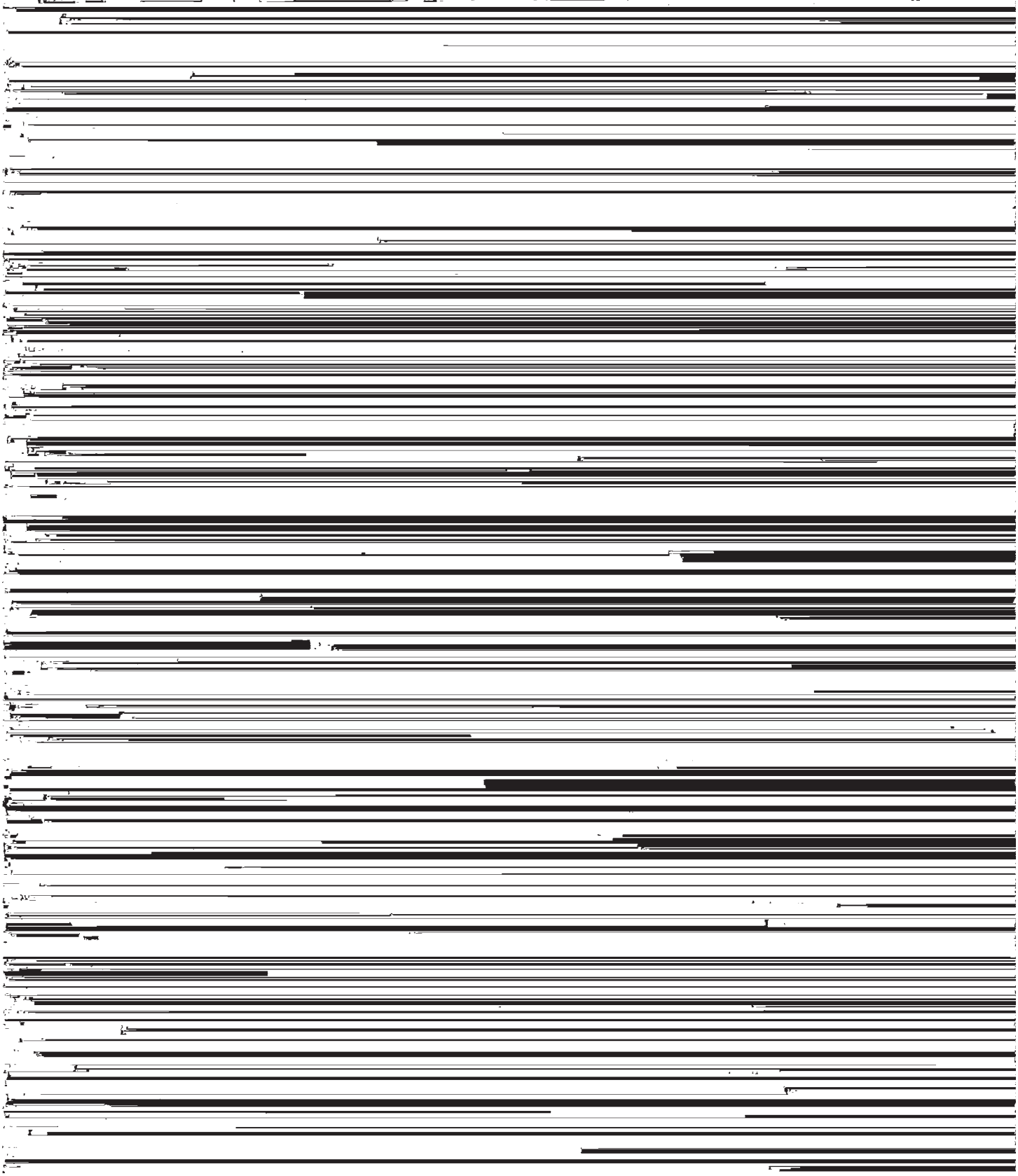
Capability unit	Area	Extent
	Acres	*Percent*

cations of the Alabama Agricultural Experiment Station. Employees of the Agricultural Extension Service and of the Soil Conservation Service can help interpret the recommendations for the soils on individual farms. They can also give technical assistance in planning the preparation of the soils for field crops or pastures, the kind of cropping system to use, terracing, drainage, pasture management, and management of woodlands.

CAPABILITY UNIT I–11

[redacted]

The soils of this unit are moderately to slowly permeable, of erosion is slight to moderate. The following soils are in



ences in the needs of different crops. The requirements should be determined by testing the soil.

This soil has rather exacting tillage requirements. It must be plowed carefully to prevent clodding. The soil has a tendency to be wet during periods of wet weather and very dry during periods of dry weather. It is cold and more adversely affected by extremes in weather conditions than the soils in capability units IIe–11 and IIe–12.

To protect this soil from erosion, plant crops on the contour. This soil also needs terraces, vegetated waterways, and other means of disposing of excess water.

CAPABILITY UNIT IIe–16

CAPABILITY UNIT IIw–11

Only one soil, Local alluvial land, is in this capability unit. This soil consists of deep, moderately well drained or well drained, nearly level alluvial material on bottoms or in small depressions on the uplands. The upper part is very friable loamy sand, sandy loam, or silt loam and extends to a depth of 13 inches. The lower part is friable sandy loam to sandy clay loam. The areas are subject to occasional flooding for short periods.

This soil is moderately permeable and has a moderate rate of infiltration. It is strongly acid, medium in content of organic matter, and moderate to high in natural fertility. The available moisture-holding capacity is moderate. Runoff is slow, and the hazard of erosion is slight.

This soil receives fresh deposits of alluvial material each time it is flooded. Therefore, it requires only moderate to small amounts of plant nutrients, although it requires large amounts of lime and organic matter.

Plowing, planting, cultivating, and harvesting of the crops on this soil are sometimes delayed when the river bottoms are flooded. Although methods for disposing of excess water are generally not needed, the soil needs ditches in some areas that will drain the low, wet sloughs.

CAPABILITY UNIT IIw–16

This unit consists of deep and moderately deep, mod-

surface layer is very friable fine sandy loam and is 10 inches thick. The subsoil is friable sandy loam.

This soil has moderate permeability and a moderate rate of infiltration. The available moisture-holding capacity is moderate to low, and the reaction is strongly acid or very strongly acid. Natural fertility and the content of organic matter are low. The water table is high. Runoff is slow, and there is little or no hazard of erosion.

This soil is suited to soybeans, corn, oats, wheat, and cabbage. Because of its somewhat poor drainage, it is not suited to pecans. Plants that are suitable for pasture are dallisgrass, bahiagrass, fescue, and whiteclover.

These soils require large amounts of plant nutrients, lime, and organic matter. The kinds and amounts of fertilizer to use vary widely because of differences in the needs of different crops. The requirements should be determined by testing the soils.

needs of different crops. The requirements should be determined by testing the soils.

These soils are easy to till, but they are limited by their mild slope, moderate to slow permeability, and moderate hazard of erosion. Therefore, if the soils are cultivated, crops need to be planted on the contour. The soils also need terraces that drain into vegetated outlets and other systems for disposing of excess water. They are suited to sprinkler irrigation.

CAPABILITY UNIT IIIe–16

This unit consists of deep, moderately well drained or somewhat poorly drained, gently sloping soils of uplands. These soils have a surface layer of very friable fine sandy loam that is 10 inches thick. Their subsoil is sandy loam, loam, or sandy clay loam.

The soils of this unit have moderate to slow permeability, a moderate rate of infiltration, and moderate to low capacity for storing available moisture. They are strongly acid or very strongly acid, low in organic matter, and low in natural fertility. Runoff is medium, and there is a moderate hazard of erosion. The following soils are in this capability unit:

Goldsboro fine sandy loam, 5 to 8 percent slopes.
Lynchburg fine sandy loam, 5 to 8 percent slopes.

These soils are suited to soybeans, field corn, sweet corn, oats, wheat, and pasture plants. They are not suited to pecans. Suitable plants to grow for pasture are dallis-

moderate to very slow permeability, poor soil structure, and the hazard of flooding. The following soils are in this capability unit:

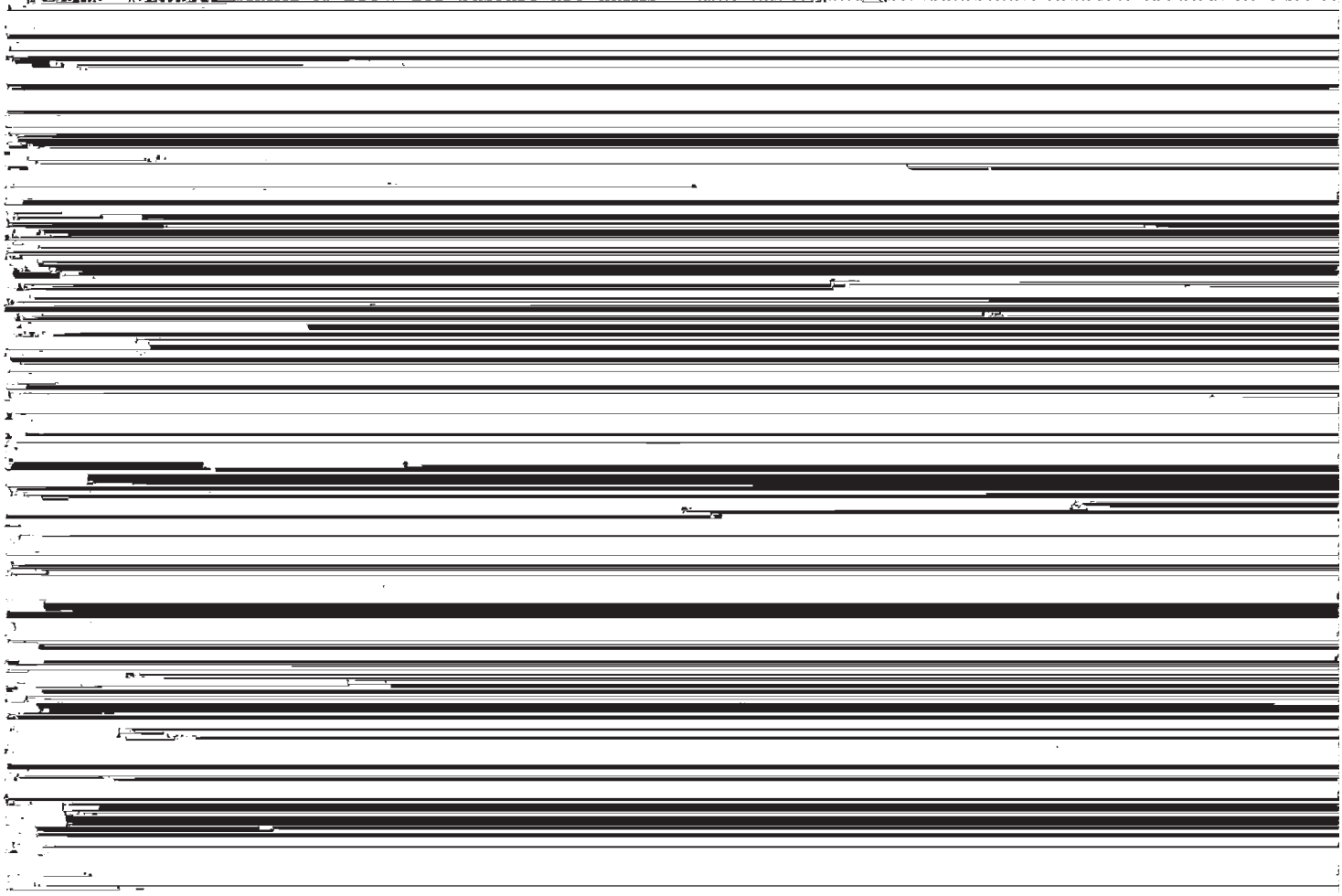
Grady soils.
Okenee soils.

If these soils are drained, they are fairly well suited to corn, soybeans, oats, and wheat. Plants that can be grown for pasture, if the soils are drained, are dallisgrass, fescue, bahiagrass, and whiteclover. Approximately 90 percent of the acreage is idle or in trees, 5 percent is cultivated, and 5 percent is in pasture. A small acreage of rice is grown on upland areas of the Grady soils.

If these soils are drained, suitable cropping systems are (1) growing pasture plants continuously, (2) growing a row crop and using the soils for pasture in alternate years, and (3) growing a row crop and a small grain in alternate years.

These soils require large amounts of fertilizer, lime, and organic matter. The kinds and amounts of fertilizer and lime to use vary widely because of differences in the needs of different crops. The requirements should be determined by testing the soils. After the soils are drained, add large amounts of organic matter to improve the soil structure and to prevent crusting and clodding.

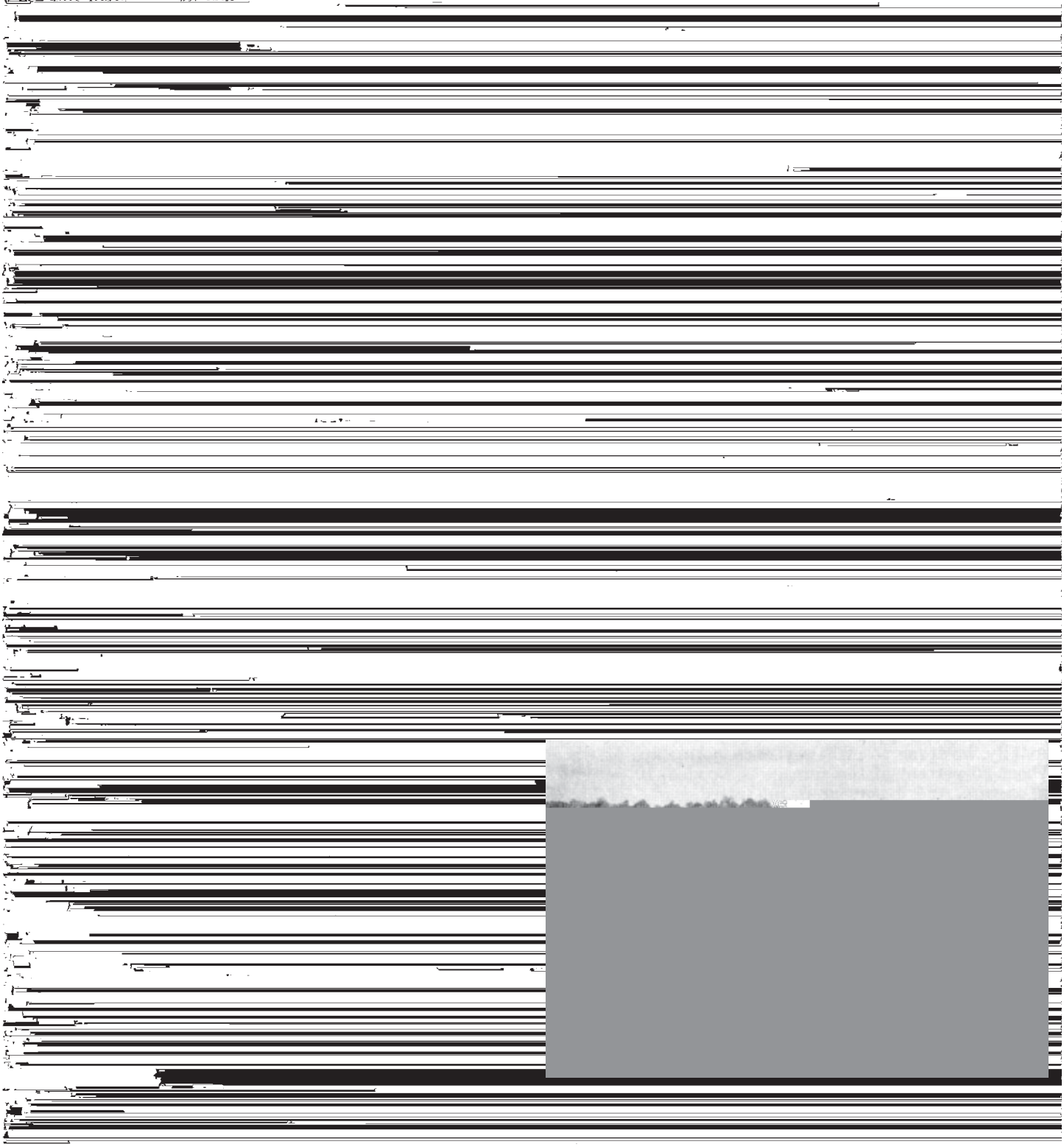
Water stands for long periods on these soils, and little can be done with them until they are drained. Even after they are drained, however, plowing, planting, cultivating, and harvesting are sometimes delayed because of excess



pasture, and one-third is wooded. Most of the acreage of the other Wahee soils is wooded, but a small part is in pasture and cultivated crops.

The Robertsdale soil occurs in areas highly developed for agriculture, and it is widely used for Irish potatoes and other truck crops. The Wahee soils and Flint, Wahee, and Leaf silt loams, 0 to 5 percent slopes, are used principally

These soils require large amounts of fertilizer, lime, and organic matter. The kinds and amounts of fertilizer and lime to use vary widely because of differences in the needs of different crops. The requirements should be determined by testing the soils. These soils need less lime than finer textured soils. Because of the sandy texture of the soils in this unit, the fertilizer needs to be applied in



years, (2) growing a row crop and a small grain in alternate years, and (3) using the soils for pasture continu-

inches thick. The subsoil is friable, firm, or very firm sandy loam, fine sandy loam, sandy clay loam, silty clay

ing in winter. The soils can be used for tilled crops. filtration is variable, and the capacity for storing available

or fine sandy loam. The subsoil is loose loamy fine sand to friable or firm sandy clay loam to sandy clay.

In most areas the soils of this unit have slow permeability and a slow rate of infiltration. The capacity for storing available moisture is moderate to low, and the soils are strongly acid to extermely acid. They are low in content of organic matter and low in natural fertility. Runoff is medium to rapid, and the hazard of erosion is moderate

natural fertility. Muck is extremely acid and high in content of organic matter. The following soils are in this capability unit:

Lakewood sand, 0 to 5 percent slopes.
St. Lucie sand, 0 to 5 percent slopes.
St. Lucie-Leon-Muck complex.

The soils of this unit are probably best suited to trees because of their low moisture-holding capacity, suscep-

Hyde and Bayboro soils and Muck, and Swamp are probably best suited to hardwoods and to use as wildlife areas. Tidal marsh is suited only to wildlife and range. Approximately 75 percent of the acreage in this unit is wooded, and 25 percent is covered by marsh grasses.

CAPABILITY UNIT VIIs–11

Only one soil, Lakeland loamy fine sand, 12 to 17 percent slopes, is in this capability unit. This soil is on uplands and is deep, excessively drained, and strongly slop-

properly; (5) good crop varieties and plant mixtures are used at proper planting rates; (6) diseases, insects, and undesirable plants are controlled; and (7) grazing is regulated.

Use and Management of Woodland [4]

A mixture of pines and hardwoods originally covered nearly all of Baldwin County. On uplands the stand consisted mainly of pines and hardwoods. On the terraces mixed hardwoods and pines were dominant, and

TABLE 6.—*Estimated average yields per acre of*

[Yields in columns A are those to be expected under common management, and yields in columns B, those to be expected under

Soil	Capability unit	Soybeans		Potatoes		Corn	
		A	B	A	B	A	B
		Bu.	*Bu.*	*100-lb. bags*	*100-lb. bags*	*Bu.*	*Bu.*
Bibb and Mantachie soils, local alluvium	IVw–11	15	20			45	80
Bowie fine sandy loam, 2 to 5 percent slopes	IIe–16	21	27			51	61
Bowie fine sandy loam, 2 to 5 percent slopes, eroded	IIe–16	18	25			45	56
Bowie fine sandy loam, 5 to 8 percent slopes	IIIe–15	15	23			39	51
Bowie fine sandy loam, 8 to 12 percent slopes	IVe–15	10	19			27	41
Bowie fine sandy loam, thin solum, 2 to 5 percent slopes	IIIe–15	17	23			43	53
Bowie fine sandy loam, thin solum, 5 to 8 percent slopes	IVe–15	12	19			37	48
Bowie, Lakeland, and Cuthbert soils, 5 to 8 percent slopes	IVe–15	8	15			29	40
Bowie, Lakeland, and Cuthbert soils, 8 to 12 percent slopes	VIe–19						
Bowie, Lakeland, and Cuthbert soils, 8 to 12 percent slopes, eroded	VIe–19						
Bowie, Lakeland, and Cuthbert soils, 12 to 25 percent slopes, eroded	VIIe–19						

principal crops under two levels of management

improved management. Dashed lines indicate that the soil is not suited to the crop specified or that the crop is not commonly grown]

Oats		Wheat		Cotton (lint)		Pasture		Watermelons		Pecans		Cabbage		Sweet corn	
A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
Bu.	*Bu.*	*Bu.*	*Bu.*	*Lb.*	*Lb.*	*Cow-acre-days* [1]	*Cow-acre-days* [1]	*Tons*	*Tons*	*Lb.*	*Lb.*	*Hampers*	*Hampers*	*Crates* [2]	*Crates* [2]
25	40	13	17			260	310								
42	52	17	22	345	550	220	270								
37	48	14	20	290	500	205	260								
32	44	11	18	235	450	190	250								
18	32	5	14	120	350	160	230								

TABLE 6.—*Estimated average yields per acre of*

Soil	Capability unit	Soybeans		Potatoes		Corn	
		A	B	A	B	A	B
		Bu.	*Bu.*	*100-lb. bags*	*100-lb. bags*	*Bu.*	*Bu.*
Made land	VIIIs–11						
Magnolia fine sandy loam, 0 to 2 percent slopes	I–11	28	33	130	140	61	71
Magnolia fine sandy loam, 2 to 5 percent slopes	IIe–11	25	31	115	130	55	66
Magnolia fine sandy loam, 2 to 5 percent slopes, eroded	IIe–11	22	29	100	120	49	61
Magnolia fine sandy loam, 5 to 8 percent slopes, eroded	IIIe–11	16	26			38	51
Mantachie silt loam	IVw–11	10	35			40	80
Marlboro very fine sandy loam, 0 to 2 percent slopes	I–11	30	35	140	150	65	75
Marlboro very fine sandy loam, 2 to 5 percent slopes	IIe–11	27	33	125	140	59	70
Marlboro very fine sandy loam, 2 to 5 percent slopes, eroded	IIe–11	24	31	110	130	53	65
Myatt very fine sandy loam	IVw–11	6	14			17	33
Norfolk fine sandy loam, 2 to 5 percent slopes	IIe–12	22	28	100	110	51	62
Norfolk fine sandy loam, 0 to 2 percent slopes	I–12	25	30	110	120	57	67
Norfolk fine sandy loam, 2 to 5 percent slopes, eroded	IIe–12	19	26			45	57
Norfolk fine sandy loam, 5 to 8 percent slopes	IIIe–12	16	24			39	52
Okenee soils	IIIw–11	6	15			10	35
Orangeburg fine sandy loam, 0 to 2 percent slopes	I–12	23	28	100	110	53	63
Orangeburg fine sandy loam, 2 to 5 percent slopes	IIe–12	20	26	90	100	47	58
Orangeburg fine sandy loam, 2 to 5 percent slopes, eroded	IIe–12	17	24			41	53
Orangeburg fine sandy loam, 5 to 8 percent slopes	IIIe–12	15	23			35	48
Orangeburg fine sandy loam, 8 to 12 percent slopes, eroded	IVe–15	7	16			24	38
Plummer loamy sand, 0 to 5 percent slopes	Vw–11						
Plummer loamy sand, 5 to 12 percent slopes	Vw–11						
Rains fine sandy loam, 0 to 2 percent slopes	IVw–11	0	14			0	33
Rains fine sandy loam, 2 to 5 percent slopes	IVw–11	0	12			0	31
Rains fine sandy loam, 5 to 8 percent slopes	IVw–11	0	10			0	29
Red Bay fine sandy loam, 0 to 2 percent slopes	I–12	22	27	95	105	51	61
Red Bay fine sandy loam, 2 to 5 percent slopes	IIe–12	19	25	85	95	45	56
Riverwash	VIIIs–11						
Robertsdale loam	IIIw–12	21	29	125	135	52	67
Ruston fine sandy loam, 2 to 5 percent slopes	IIe–12	21	27	95	105	49	60
Ruston fine sandy loam, 0 to 2 percent slopes	I–12	24	29	105	115	55	65
Ruston fine sandy loam, 2 to 5 percent slopes, eroded	IIe–12	18	25			43	55
Ruston fine sandy loam, 5 to 8 percent slopes	IIIe–12	16	24			37	50
Ruston fine sandy loam, 5 to 8 percent slopes, eroded	IIIe–12	13	22			31	45

principal crops under two levels of management—Continued

Oats		Wheat		Cotton (lint)		Pasture		Watermelons		Pecans		Cabbage		Sweet corn	
A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
Bu.	*Bu.*	*Bu.*	*Bu.*	*Lb.*	*Lb.*	*Cow-acre-days* [1]	*Cow-acre-days* [1]	*Tons*	*Tons*	*Lb.*	*Lb.*	*Hampers*	*Hampers*	*Crates* [2]	*Crates* [2]
51	61	23	28	420	670	250	300	6	8	320	520	180	280	90	140
46	57	20	26	385	640	235	290	5	7	220	420	130	230	65	115
41	53	17	24	330	590	220	280								
36	49	14	22	275	540	190	260								
25	55	10	25			210	310								
55	65	25	30	410	610	260	310	5	7	340	540	200	300	100	150
50	61	22	28	375	600	245	300	4	6	240	440	150	250	75	125
45	57	19	26	320	530	230	290								
16	29	6	11	140	370	210	260								
42	53	17	23	355	560	225	280	4	6	200	400	110	210	55	105
47	57	20	25	390	590	240	290	5	7	300	500	160	260	80	130
37	49	13	21	300	510	210	270								
32	45	10	19	245	460	195	260								
10	24	6	12			100	250								
43	53	18	23	400	600	230	280	6	8	280	480	140	240	70	120
38	49	15	21	365	570	215	270	5	7	180	380	90	190	45	95
33	45	12	19	310	520	200	260								
28	41	9	17	255	470	185	250								
23	37	6	15	180	420	140	220								
						90	250								
						90	250								
0	29	0	11			100	260								
0	27					90	250								
0	25					80	240								
41	51	17	22	405	605	225	275	6	8	270	470	130	230	65	115
36	47	14	20	370	575	210	260	5	7	170	370	80	180	40	90
42	57	17	25	280	500	230	310								
40	51	16	22	360	565	220	275	5	7	190	390	100	200	50	100
45	55	19	24	395	595	235	285	6	8	290	490	150	250	75	125
35	47	13	20	305	515	205	265								
30	43	10	18	250	465	190	255								
25	39	7	16	195	415	175	245								
20	35	4	14			160	235								
						135	185								
49	59	22	27	410	610	260	310					190	290	95	145
26	38	9	15	140	370	130	210								
21	33	7	13	110	350	120	205								
						135	185								
27	36	12	17	230	430	155	205								
55	65	25	30	415	615	260	310	5	7	340	540	200	300	100	150
50	61	22	28	380	585	245	300	4	6	240	440	150	250	75	125
45	57	19	26	325	535	230	290								
40	53	16	24	270	485	215	280								
35	49	13	22	215	435	200	270								
26	35	11	16	245	460	170	240								
27	37	12	17	250	465	160	230								
						130	210								
						130	210								

Some kinds of trees that grow on these areas are white willow, water oak, overcup oak, swamp chestnut oak, Shumard oak, red oak, sweetgum, tupelo-gum, blackgum, cypress, willow, cottonwood, ash, and hickory. There is also a scattering of spruce pine, loblolly pine, and slash pine.

Woodland suitability groups

To help in planning the management of the soils in Baldwin County, the soils that have similar characteristics that affect their suitability for growing trees have been placed in woodland suitability groups (see table 7). Each group is made up of soils that have about the same site index and about the same species priority. For all of the soils of a group, plant competition, seedling mortality, equipment limitations, and the hazards of windthrow and erosion are about the same. All of these items are important to the owner of a tract of woodland and will help him in planning his management.

The site index is determined by measuring the height, at-

TABLE 7.—*Woodland suitability groups and*

Woodland suitability group and map symbol	Loblolly pine			Longleaf pine			Shortleaf pine		
	Site index [1]	Yearly rate of growth per acre [2]		Site index [1]	Yearly rate of growth per acre [2]		Site index [1]	Yearly rate of growth per acre [2]	
		Bd. ft. (Doyle) [3]	*Cords (rough)* [4]		*Bd. ft. (Doyle)* [3]	*Cords (rough)* [4]		*Bd. ft. (Doyle)* [3]	*Cords (rough)* [4]
Group 1. Deep, excessively drained, very friable loamy fine sands that are low in organic matter. (EuB, EuC, EuD, LaB, LaC, LaD, LaE)	70	310	1. 4	70	310	1. 4	70	310	1. 4
Group 2. Deep, excessively drained sands that have a thin layer of organic matter and are very low in moisture-holding capacity and in fertility. (LkB, SsB)	[5] 60	250	1. 1	[5] 50	200	. 9	[5] 50	200	. 9
Group 3. Deep, moderately well drained, very friable loamy fine sands that are low in organic matter and in fertility. (KlB, KlC)	[5] 80	400	1. 9	[5] 70	310	1. 4	70	310	1. 4
Group 4. Poorly drained and very poorly drained, dominantly sandy soils that are low in fertility, variable in organic matter, and have a high water table. (Gr, Lm, My, Ok, PmB, PmC, RaA, RaB, RaC, ScA, ScB)	90	520	2. 3	70	310	1. 4	[5] 70	310	1. 4
Group 5. Dominantly deep, well-drained soils that have a friable subsoil of sandy clay loam or clay loam. (BoB, BoB2, BoC, BoD, CaB, CgA, CgB, CgB2, CgC, CgC2, CgD, CgD2, FaA, FaB, FaB2, FaC, FaC2, GoA, GoB, GoC, GvA, GvB, GvB2, GvC2, KaA, KaB, MgA, MgB, MgB2, MgC2, MrA, MrB, MrB2, NoA, NoB, NoB2, NoC, OrA, OrB, OrB2, OrC, OrD2, RbA, RbB, RuA, RuB, RuB2, RuC, RuC2, RuD, TfA, TfB, TfB2, TfC, TfC2)	80	400	1. 9	70	310	1. 4	70	310	1. 4
Group 6. Somewhat poorly drained to moderately well drained soils that are moderately permeable in the upper part but have layers that restrict the movement of water and air in the lower part. (IzA, IzB, LyA, LyB, LyC, Rr)	90	520	2. 3	70	310	1. 4	[5] 70	310	1. 4
Group 7. Soils that are shallow over heavy clay or cemented sandy material and that have moderately good internal drainage and excessive surface drainage. (BwC, BwD, BwD2, BwF2, CuC, CuD, CuE2, CtB, CtC, CtD, CtE, SuB2, SuC2, SuD2)	80	400	1. 9	70	310	1. 4	70	310	1. 4
Group 8. Moderately well drained, moderately permeable, friable soils that have a low to moderate available moisture-holding capacity and a fragipan or layer of cemented material at a depth of 20 to 30 inches. (BtB, BtC, IrA, IrB, SbA)	80	400	1. 9	70	310	1. 4	[5] 70	310	1. 4
Group 9. Deep, moderately well drained, friable soils that are moderate in available moisture-holding capacity, are high in plant nutrients, and are on flood plains. (Iu, Lv)	90	520	2. 3	[5] 70	310	1. 4	[5] 70	310	1. 4
Group 10. Moderately deep, excessively drained to poorly drained, friable, alluvial soils that range from sand to silty clay in texture. (Bb, Mn, Sa, Wc, Wm)	90	520	2. 3	[5] 70	310	1. 4	[5] 70	310	1. 4

See footnotes at end of table.

tained at 50 years of age, of representative trees of the dominant species in a stand. For practical purposes, the site index is rounded off to the nearest 10-foot class.

Plant competition refers to the degree of competition that can be expected from undesirable plants that invade the planting site. The ratings used to indicate the degree of competition from other plants are *slight*, *moderate*, and *severe*. A rating of slight shows that no special problem is recognized and that invasion by undesirable plants will not impede natural regeneration and the growth of desirable plants. A rating of moderate means that plant competition develops but generally does not prevent an adequate stand from becoming established. A rating of severe means that plant competition prevents trees from restocking naturally and that special management is needed.

Seedling mortality refers to the expected degree of mortality or loss of natural seedlings as influenced by the kinds of soils or other factors in the environment. The terms used to indicate the degree of seedling mortality

factors affecting woodland management

Slash pine			Suitable species in order of priority	Plant competition	Seedling mortality	Equipment limitations	Windthrow hazard	Erosion hazard
Site index [1]	Yearly rate of growth per acre [2]							
	Bd. ft. (Doyle) [3]	*Cords (rough)* [4]						
80	400	1. 9	Loblolly pine; slash pine; longleaf pine.	Moderate	Moderate to severe.	Slight	Slight	Slight to moderate.
[5] 60	250	1. 1	Loblolly pine; slash pine; sand pine; longleaf pine; shortleaf pine.	Severe	Severe	Slight	Slight	Slight.
80	400	1. 9	Loblolly pine; slash pine;	Moderate	Moderate	Moderate	Slight	Slight.

factors affecting woodland management—Continued

Slash pine			Suitable species in order of priority	Plant competition	Seedling mortality	Equipment limitations	Windthrow hazard	Erosion hazard
Site index [1]	Yearly rate of growth per acre [2]							
	Bd. ft. (Doyle) [3]	*Cords (rough)* [4]						
[5] 70	310	1. 4	Loblolly pine; slash pine; shortleaf pine.	Moderate	Slight to moderate.	Moderate to severe.	Moderate	Slight.
([6])	([6])	([6])	([6])	([6])	([6])	([6])	([6])	([6])
([6])	([6])	([6])	([6])	([6])	([6])	([6])	([6])	([6])
90	520	2. 3	Lobolly pine; slash pine; yellow-poplar; sweetgum.	Severe	Slight	Moderate	Moderate	Slight.

[4] Average yearly rate of growth in cords (rough cords) for an average stand 10 inches in diameter at breast height, age 25 to 36 years.

[5] Data extrapolated from measurements on soils that have similar characteristics or from measurements on soils located in counties other than Baldwin County.

[6] Variable.

development of roots. Trees can be expected to blow over when released on all sides or when the velocity of the wind is high. None of the soils in the county has a rating of severe.

The hazard of erosion refers to the likelihood of erosion when the soils are managed according to currently acceptable practices. For the soils in this county, a rating of *slight* or of *moderate* was given.

WOODLAND SUITABILITY GROUP 1

In this group are deep, excessively drained loamy fine sands. These soils are very friable, and they have a deep root zones. Permeability is rapid, and the moisture-holding capacity is low. These soils are low in plant nutrients and in content of organic matter. They are susceptible to leaching and are strongly acid. The following soils are in this group:

Eustis loamy fine sand, 0 to 5 percent slopes.
Eustis loamy fine sand, 5 to 8 percent slopes.
Eustis loamy fine sand, 8 to 12 percent slopes.
Lakeland loamy fine sand, 0 to 5 percent slopes.
Lakeland loamy fine sand, 5 to 8 percent slopes.
Lakeland loamy fine sand, 8 to 12 percent slopes.
Lakeland loamy fine sand, 12 to 17 percent slopes.

Plant competition is moderate on these soils. There is little moisture in the soils, except after rains, and the presence of scrub hardwoods also prevents a stand of pines from becoming established. If a stand of pines is to be established, the areas need to be burned over and the hardwoods controlled (fig. 16).

Seedling mortality is moderate to severe because of the excessive drainage and drying of the soils. If a stand of pines is to be established, the site needs to be prepared carefully to conserve moisture and to reduce the competition from other plants. Also, replanting (fig. 17) may be necessary to obtain a well-stocked stand.

Equipment limitations are slight on these soils. Conventional equipment can be used throughout the year.

The hazard of windthrow is slight because the roots of trees develop well and penetrate deeply.

The hazard of erosion is slight to moderate. Because the soils are loose, however, firebreaks, trails, and roads should be constructed across the slope to prevent gullies from forming. In places there is likely to be some wind erosion in large, open fields.

***Figure 17.*—A planting of 3-year-old slash pine on Eustis loamy fine sand, 0 to 5 percent slopes, that has been cleared. The large oak trees have been girdled.**

WOODLAND SUITABILITY GROUP 2

In this group are deep, excessively drained sands. These soils are loose and have very rapid permeability. They are very low in natural fertility and in moisture-holding capacity. In places the Lakewood soil in this group has a thin layer of organic matter at variable depths. The following soils are in this group:

Lakewood sand, 0 to 5 percent slopes.
St. Lucie sand, 0 to 5 percent slopes.

Plant competition is severe on these soils because of the excessive drainage and very low fertility. Unwanted plants will keep a good stand of pines from becoming established. Burning over the areas and controlling the brush will be necessary before a fully stocked stand can be established.

Seedling mortality is severe on these soils. The site needs to be prepared so that moisture will be conserved. Also, to obtain a satisfactory stand, roots of the seedlings need to be placed deep in the soil where they will be closer to a dependable source of moisture. Replanting may be necessary.

Equipment limitations are slight, and most kinds of conventional equipment can be used throughout the year. Because of the sandy texture of these soils, however, the use of some types of equipment may be limited.

The hazard of windthrow is slight on these soils because roots can penetrate deeply.

WOODLAND SUITABILITY GROUP 4

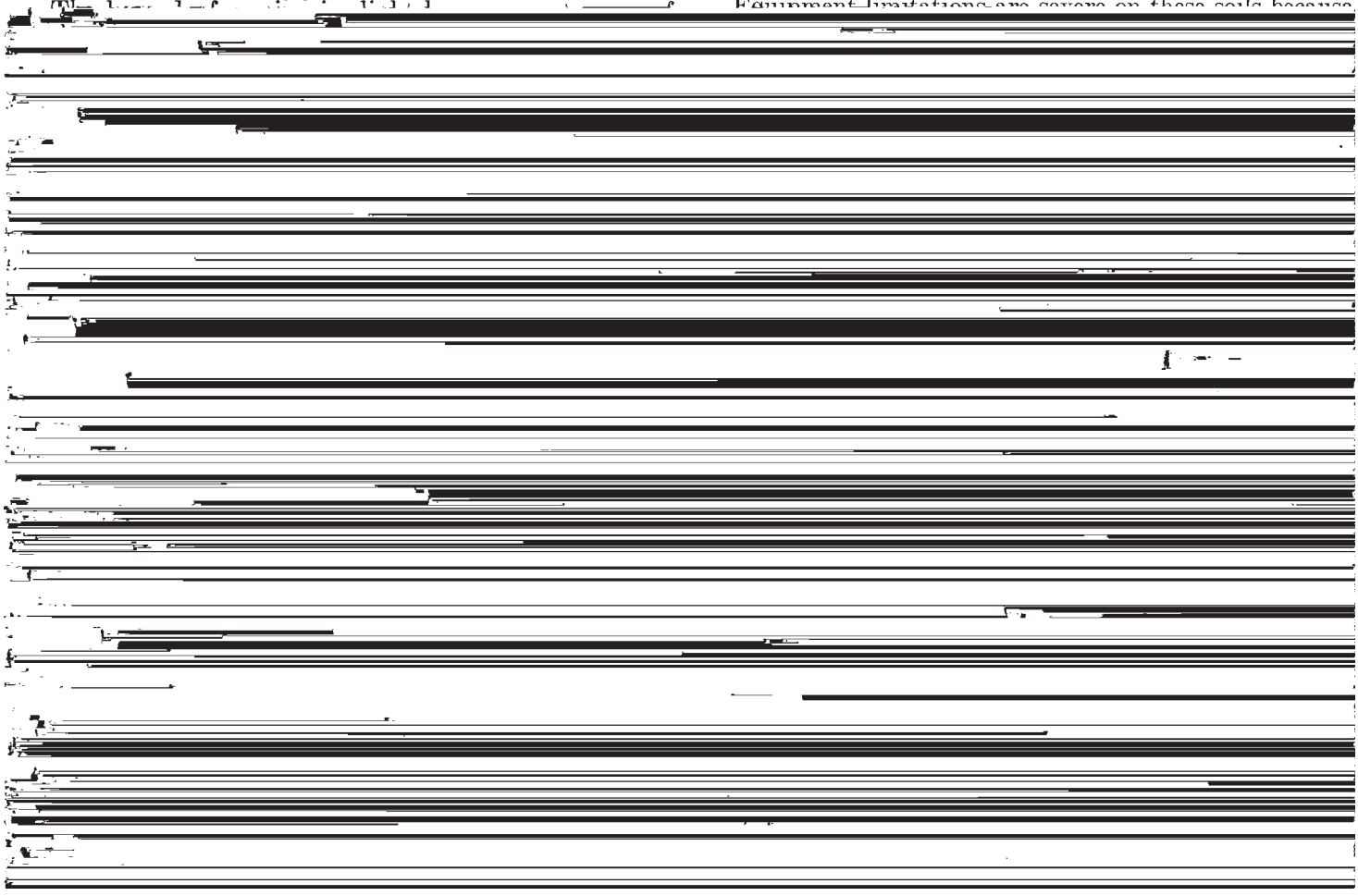
The soils in this group are poorly drained or very poorly drained and have a high water table. Water stands on or near the surface most of the year. These soils are low in plant nutrients and vary in content of organic matter. Most of them are sandy, but in places the Leaf soil and the Grady soils have a texture of clay or sandy clay. The following soils are in this group:

Grady soils.
Leaf silt loam.
Myatt very fine sandy loam.
Okenee soils.
Plummer loamy sand, 0 to 5 percent slopes.
Plummer loamy sand, 5 to 12 percent slopes.
Rains fine sandy loam, 0 to 2 percent slopes.
Rains fine sandy loam, 2 to 5 percent slopes.
Rains fine sandy loam, 5 to 8 percent slopes.
Scranton loamy fine sand, 0 to 2 percent slopes.
Scranton loamy fine sand, 2 to 5 percent slopes.

Plant competition is severe on the soils of this group. The large amount of moisture in the soils increases the growth of unwanted plants in openings and under partial shade. To reduce competition from unwanted plants, it is necessary to use chemicals and other methods to control the hardwoods, including girdling, clearing, and disking.

Seedling mortality is slight on these soils. If competition from undesirable plants is removed, the large amount of moisture in the soils is ideal for seedlings to grow and develop properly.

Equipment limitations are severe on these soils because



Greenville loam, 2 to 5 percent slopes, eroded.
Greenville loam, 5 to 8 percent slopes, eroded.
Kalmia fine sandy loam, 0 to 2 percent slopes.
Kalmia fine sandy loam, 2 to 5 percent slopes.
Magnolia fine sandy loam, 0 to 2 percent slopes.
Magnolia fine sandy loam, 2 to 5 percent slopes.
Magnolia fine sandy loam, 2 to 5 percent slopes, eroded.
Magnolia fine sandy loam, 5 to 8 percent slopes, eroded.
Marlboro very fine sandy loam, 0 to 2 percent slopes.
Marlboro very fine sandy loam, 2 to 5 percent slopes.
Marlboro very fine sandy loam, 2 to 5 percent slopes, eroded.
Norfolk fine sandy loam, 0 to 2 percent slopes.
Norfolk fine sandy loam, 2 to 5 percent slopes.
Norfolk fine sandy loam, 2 to 5 percent slopes, eroded.
Norfolk fine sandy loam, 5 to 8 percent slopes.
Orangeburg fine sandy loam, 0 to 2 percent slopes.
Orangeburg fine sandy loam, 2 to 5 percent slopes.
Orangeburg fine sandy loam, 2 to 5 percent slopes, eroded.
Orangeburg fine sandy loam, 5 to 8 percent slopes.
Orangeburg fine sandy loam, 8 to 12 percent slopes, eroded.
Red Bay fine sandy loam, 0 to 2 percent slopes.
Red Bay fine sandy loam, 2 to 5 percent slopes.
Ruston fine sandy loam, 0 to 2 percent slopes.
Ruston fine sandy loam, 2 to 5 percent slopes.
Ruston fine sandy loam, 2 to 5 percent slopes, eroded.
Ruston fine sandy loam, 5 to 8 percent slopes.
Ruston fine sandy loam, 5 to 8 percent slopes, eroded.
Ruston fine sandy loam, 8 to 12 percent slopes.
Tifton very fine sandy loam, 0 to 2 percent slopes.
Tifton very fine sandy loam, 2 to 5 percent slopes.
Tifton very fine sandy loam, 2 to 5 percent slopes, eroded.
Tifton very fine sandy loam, 5 to 8 percent slopes.
Tifton very fine sandy loam, 5 to 8 percent slopes, eroded.

Plant competition is moderate on these soils. Generally, a stand of desirable trees will become established, but in many places the competition from undesirable plants is strong enough to slow the development of the trees. Methods to control cull trees and careful preparation of the site, including clearing, disking, and controlled burning, will help in establishing a stand of pines or other desirable trees (fig. 18) by natural seeding.

Seedling mortality is moderate; a desirable stand will develop naturally, especially if competition from undesirable plants has been eliminated or controlled. A good stand can be obtained without difficulty if the seedlings are planted properly.

Equipment limitations are slight, but equipment cannot be used for short periods after a heavy rain.

The hazard of windthrow is slight on these soils because the roots of trees penetrate deeply.

The hazard of erosion is slight to moderate. Roads, skidtrails, and firebreaks should be located properly, however, so that gullies will not form.

WOODLAND SUITABILITY GROUP 6

The soils in this group are somewhat poorly drained to moderately well drained. The upper part of their solum is moderately permeable, but the lower part contains layers that restrict the movement of water and the penetration of roots. These soils are low in fertility and low to medium in content of organic matter. The following soils are in this group:

Izagora very fine sandy loam, 0 to 2 percent slopes.
Izagora very fine sandy loam, 2 to 5 percent slopes.
Lynchburg fine sandy loam, 0 to 2 percent slopes.
Lynchburg fine sandy loam, 2 to 5 percent slopes.
Lynchburg fine sandy loam, 5 to 8 percent slopes.
Robertsdale loam.

Plant competition is moderate on these soils, but a satisfactory stand of desired trees can generally be obtained. Because moisture is favorable for the growth of plants, however, plant competition will develop, and sometimes unwanted trees and shrubs will need to be controlled to establish a desirable stand.

Seedling mortality is moderate. Except during droughts, a good stand of desirable trees can generally be obtained by natural seeding and the trees will grow well. Plantations of pine seedlings should develop a good, well-stocked stand without interplanting or replanting.

Equipment limitations are severe during rainy seasons and moderate at other times. The soils may be too wet for equipment to be used for as long as 2 to 3 months.

The hazard of windthrow is slight. The structure of these soils and the supply of moisture favor development of a good root system. Roots penetrate to a fairly great depth before they reach a dense or compact layer.

The hazard of erosion is slight on these soils, but roads, trails, and firebreaks should be constructed across the slope to prevent gullies from forming.

WOODLAND SUITABILITY GROUP 7

In this group are soils that are shallow over various kinds of parent material. The soils have moderately good internal drainage, but surface drainage is excessive. The texture of the subsoil is variable, but it is generally heavy clay or cemented, sandy material. The rate of infiltration and permeability are slow or very slow, and the moisture-holding capacity is low. These soils are low in natural plant nutrients. The following soils are in this group:

Bowie, Lakeland, and Cuthbert soils, 5 to 8 percent slopes

Cuthbert fine sandy loam, 5 to 8 percent slopes.
Cuthbert fine sandy loam. 8 to 12 percent slopes.
Cuthbert fine sandy loam, 12 to 17 percent slopes.
Cuthbert, Bowie, and Sunsweet soils, 5 to 8 percent slopes.
Cuthbert, Bowie, and Sunsweet soils, 8 to 12 percent slopes.
Cuthbert, Bowie, and Sunsweet soils, 12 to 17 percent slopes, eroded.
Sunsweet fine sandy loam, 2 to 5 percent slopes, eroded.
Sunsweet fine sandy loam, 5 to 8 percent slopes, eroded.
Sunsweet fine sandy loam, 8 to 17 percent slopes, eroded.

Plant competition is slight on these soils; a satisfactory stand of desirable trees will generally develop without the use of special measures. In some areas where seepage occurs, however, or in areas where fertility is high, hardwoods need to be controlled. Clearing, disking, and burning over the areas will help establish and release a new stand of desirable trees.

Seedling mortality is moderate on these soils. Generally, the areas seed naturally, and the seedlings develop a good stand. Droughts will sometimes make it necessary

The hazard of erosion is slight to moderate. Roads, skidtrails, and firebreaks should be located properly to prevent gullies from forming.

WOODLAND SUITABILITY GROUP 9

In this group are deep, moderately well drained, friable soils on flood plains. The soils are flooded frequently. Permeability is slow, and the capacity for storing available moisture is moderate. These soils are high in natural plant nutrients and medium in content of organic matter. The following soils are in this group:

Iuka silt loam.
Local alluvial land.

Plant competition is moderate to severe because of the fairly large amount of moisture in the soils and the high fertility. To attain a fully stocked stand of desirable trees, it is generally necessary to use control measures, such as injecting, girdling, clearing, and spraying with

Equipment limitations are severe. The soils are flooded or wet during a large part of the year, and they can be logged only during dry seasons, or for approximately 6 months each year. There will be some damage to roots if heavy equipment is used during wet seasons.

The hazard of windthrow is slight to moderate on these soils. In some areas the trees will have shallow roots because of the high water table, but excessive windthrow is not likely.

The hazard of erosion is slight because the soils are nearly level.

Longleaf pine and shortleaf pine generally do not grow on these soils. Cottonwood can be planted only on the better drained, elevated areas.

WOODLAND SUITABILITY GROUP 11

In this group are poorly drained to excessively drained, sandy soils that are strongly acid to extremely acid. These soils are low in natural fertility and variable in content of organic matter. Their capacity for storing available moisture is low, the rate of infiltration is rapid, and runoff is slow. Leon sand is poorly drained. It has a dense layer, cemented with organic matter, at a depth of about 24 to 30 inches. This layer restricts the movement of water through the profile. Generally, there is a high water table. The following soils are in this group:

Leon sand.
St. Lucie-Leon-Muck complex.

Plant competition is moderate on these soils. Hardwood cull trees and shrubs cause pines to grow slowly, and they sometimes prevent a stand of pines from becoming established. If a desirable stand is to be established, the areas need to be burned over and the hardwoods need to be controlled.

Seedling mortality is slight or moderate on these soils. It becomes lower if plant competition is controlled or eliminated.

Equipment limitations are severe 3 to 4 months of each year during wet periods. During the rest of the year, limitations are moderate.

Swamp and Hyde and Bayboro soils and Muck are deep and very poorly drained. Water stands on the surface most of the time. These soils are high in content of organic matter. They are probably best suited to cypress, tupelo-gum, juniper, and slash pine. Competition from other plants, seedling mortality, and limitations to the use of equipment are severe on these soils.

Gullied land has a variable texture ranging from deep sand to clay. Pines are the main kind of tree grown on Gullied land. Competition from other plants, seedling mortality, and limitations to the use of equipment are variable on these soils. Also variable are the hazard of windthrow and the hazard of erosion.

WOODLAND SUITABILITY GROUP 14

In this group are moderately well drained to somewhat poorly drained, nearly level, fine-textured soils on terraces along streams. These soils have a thin surface layer and a fine-textured subsoil through which water moves slowly or very slowly. They have a slow or very slow rate of infiltration and a low to moderate water-holding capacity. The following soils are in this group:

Flint silt loam, 2 to 5 percent slopes.
Flint, Wahee, and Leaf silt loams, 0 to 5 percent slopes.
Wahee silt loam, 0 to 2 percent slopes.
Wahee silt loam, 2 to 5 percent slopes.

Plant competition is severe on these soils. Pines and hardwoods grow well because of favorable moisture. If pines are the desired trees, intensive methods to control hardwoods will be needed to keep vines and sprouts from competing with the pine seedlings. These include spraying with a herbicidal chemical.

Seedling mortality is slight on these soils if plant competition is controlled. Planting is generally not needed where the site has been prepared to remove competition and where seed trees are present. Where desirable seed trees are not already present, planting should be done as soon as practicable.

Equipment limitations are moderate. The soils in this group puddle and pack easily during wet weather, and

suitable for range. The kinds and amounts of vegetation on the range will determine the number of cattle that can be carried profitably.

The marshlands used for range consist of both freshwater and salt-water marshes along the coast. The areas generally support native grasses and other forage plants. They are not suitable for cultivation, and it would not pay to add fertilizer to them. The forage is restored and improved mainly through correct grazing practices and good management. No trees grow on the marshes.

Principles of range management

On rangeland, high yields of forage and the conservation of soil, water, and plants are obtained mainly by improving the native vegetation. To improve the vegetation, the grazing needs to be managed to encourage and to increase the best native forage plants. The development of leaves, the growth of roots, the production of seeds, the regrowth of forage, and the storage of food in the roots are essential stages in the development and growth of range plants. Grazing must allow for these natural processes of growth if the maximum yields of forage are to be obtained.

Livestock graze selectively, seeking out the more palatable and nutritious plants. If grazing is not carefully regulated, the more palatable plants will eventually be eliminated and less desirable plants will increase. If grazing pressure is continued, even the second-choice plants will be thinned out or eliminated and undesirable weeds will take their place.

If only half the yearly volume of grass produced is grazed, damage which occurs to the desirable plants is

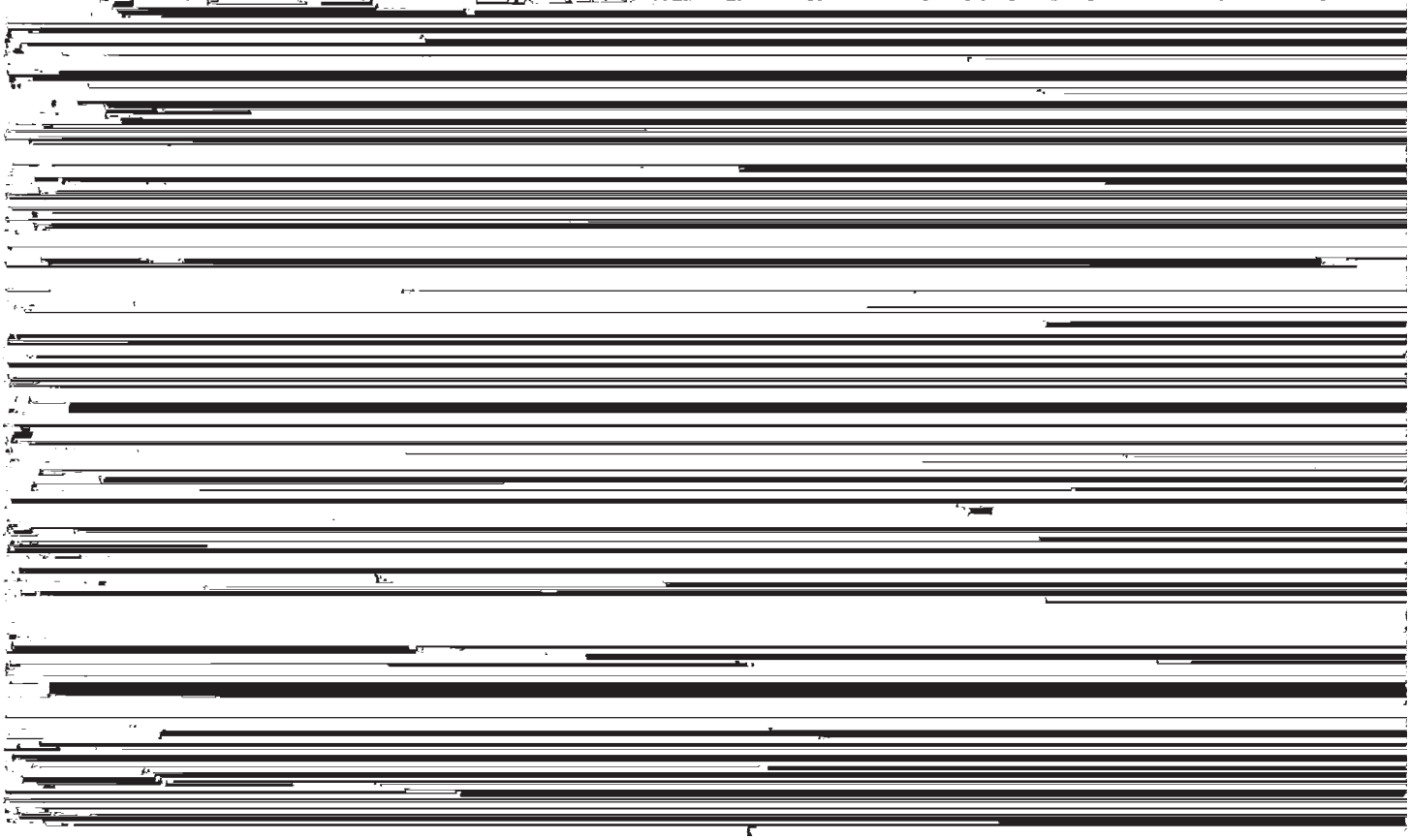
woodland areas in pines, the control of undesirable woody plants, proper thinning, and harvest cutting encourage the highest production of forage consistent with the production of timber. Managed grazing of pine woodlands, in turn, reduces the hazard of fire and contributes to the control of undesirable hardwoods. It also helps pines to reproduce naturally by reducing the competition from forage plants and by permitting the pine seeds to come in contact with the mineral soil.

Range sites and range condition

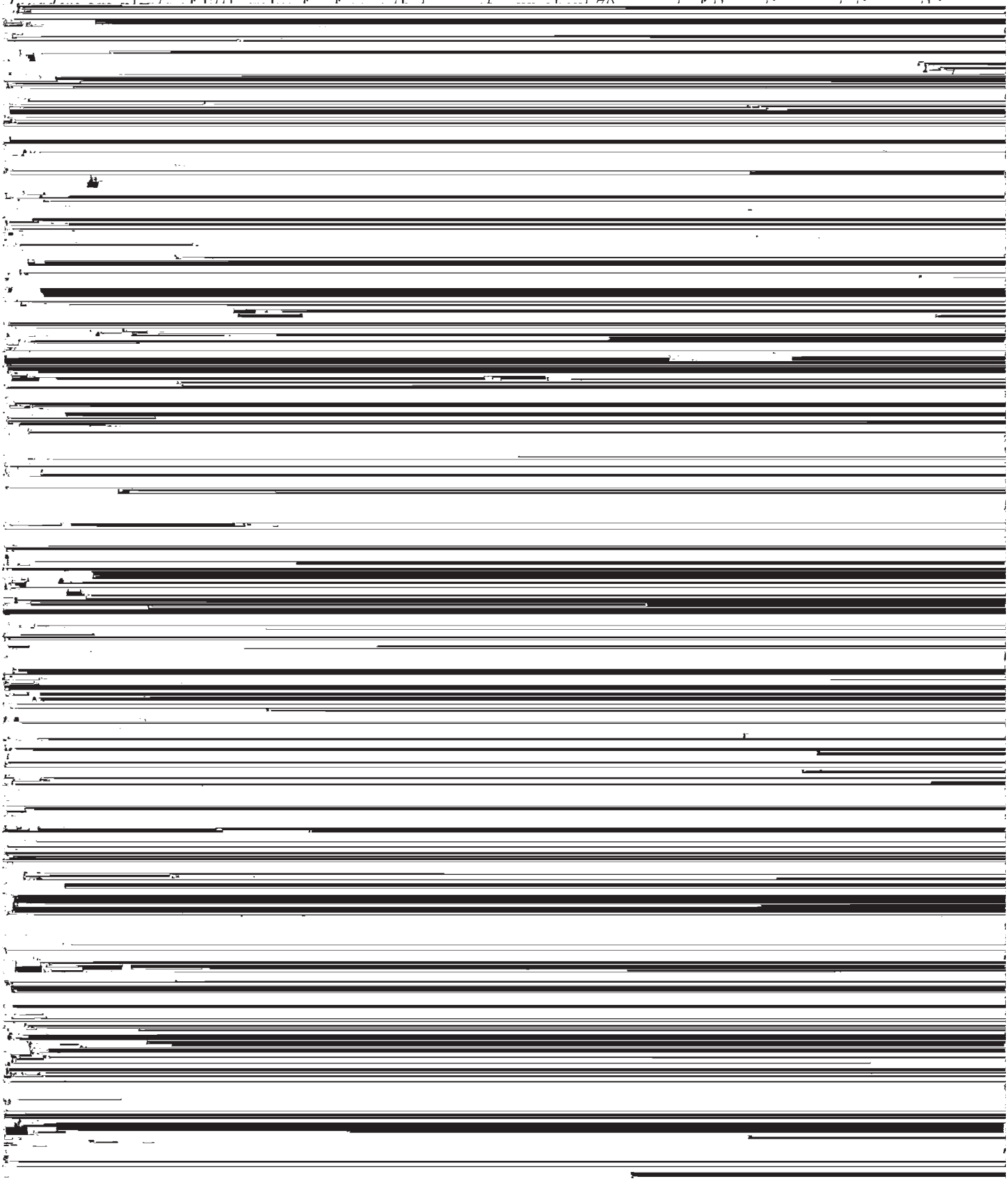
To make use of the best practices and to improve his grasslands, the range operator needs to know the range plants and the combinations in which they grow. He should be able to read the signs that show him whether his range is getting better or worse. Important changes in the kinds of grasses often take place gradually, and they can be overlooked by an operator who is not acquainted with his range plants and soils.

Different kinds of soils produce different kinds and amounts of grass. To manage the range properly, the operator should know the different kinds of soils in his holdings and the plants each kind is capable of growing. He is then able to manage the range to favor the best forage plants on each kind of soil.

Range sites are kinds of rangeland that differ from each other in their ability to produce a significantly different kind or amount of climax, or original, vegetation. A significant difference means one large enough to require different grazing use or management. If two areas of rangeland in climax condition have a distinctly different plant composition, they make up two different range sites.



grazing but finally go out under continual heavy use. In general, range condition is good. Decreasers make



The soils of this site are mainly deep, excessively drained loamy sands and sands. They have a rapid or very rapid rate of infiltration and of permeability. These soils are droughty and are low or very low in fertility.

The average annual precipitation for this site is about 65 inches. The rainfall is fairly well distributed throughout 9 months of the year; May, October, and November are the driest months. The optimum growing season for the native plants on this site lasts from March to May, but the plants grow to some extent until August. The frost-free growing season is about 270 days. The date of the last killing frost in spring is around March 10; that of the first in fall is November 10.

Generally, range condition is good to excellent. Decreasers make up about 76 percent of the native vegetation on this range site. Little bluestem is the principal

The texture of the material deposited on the flood plains ranges from sandy loam or silt loam to silty clay. In places there is a cover of peat or muck that is 2 to 3 feet thick. In depressions in the flatwoods, the texture in the upper part of the soil material is generally sandy loam or silt loam. That in the lower part is silty clay or clay. Nearly all of the acreage in this site is mapped as Swamp, but the following soils are in this site:

Grady soils.
Hyde and Bayboro soils and Muck.
Swamp.

The soils of this site are poorly drained or very poorly drained. Because of their topography and elevation, water stands on the surface a large part of the year.

On this range site, precipitation ranges from 50 to 75 inches annually, but it is usually about 65 inches. Rain-

grow. Cattail and bulrush grow in the same area, maidencane and cutgrass generally grow in different areas, and jamaica sawgrass grows in still another area. Maidencane, giant cutgrass, and common reed are the most nutritious plants that grow in marshes covered by fresh water.

Practices of range management

Practices applicable on rangeland include proper grazing of the woodlands, proper development of watering places, and proper salting.

Proper woodland grazing consists of grazing areas where the growing of trees is a planned land use. Grazing should be at an intensity that will maintain an adequate protective cover for the soils, that will maintain or improve the quantity and quality of the trees and forage plants, and that will prevent damage to the soils and to the sources of moisture

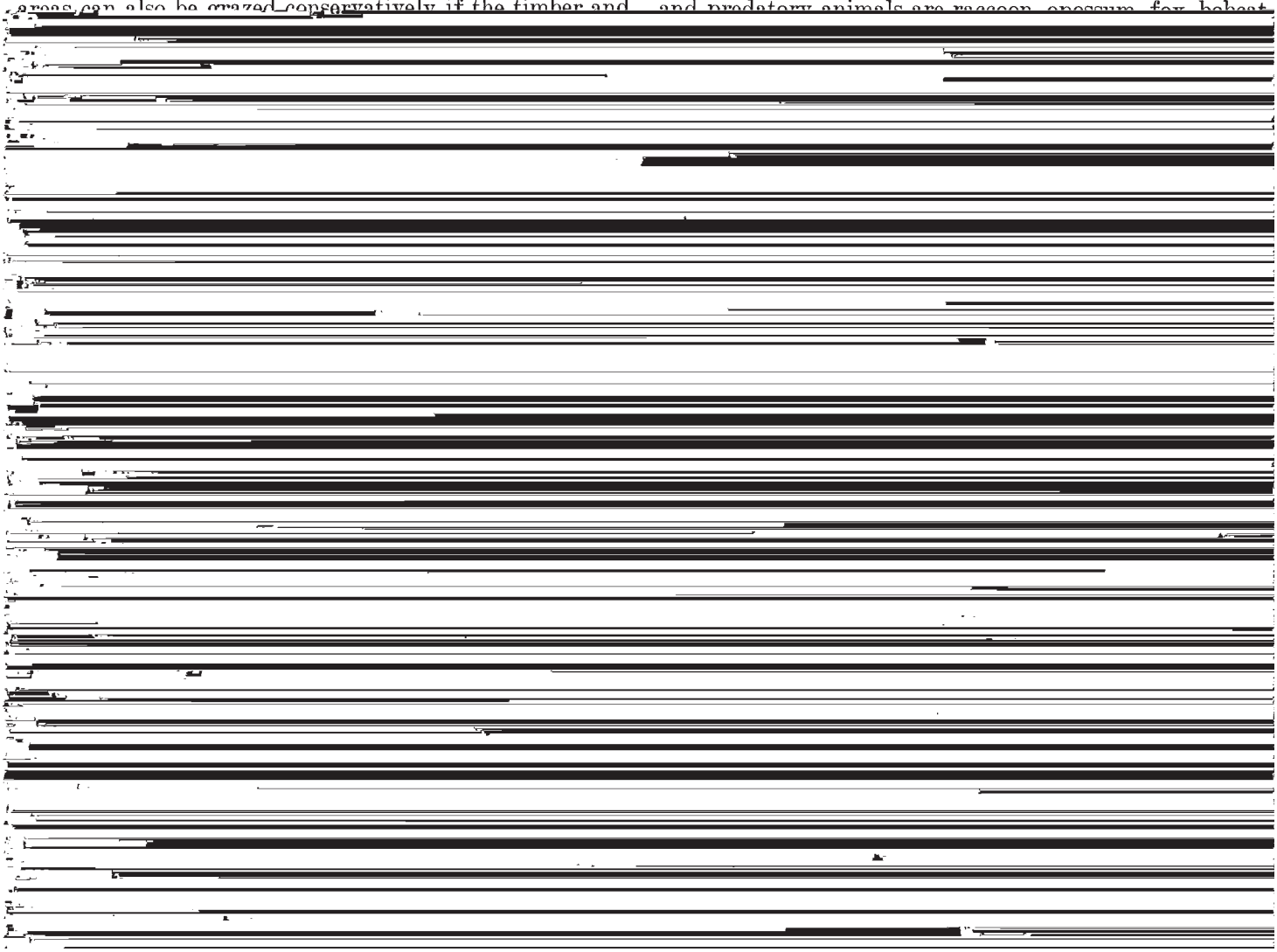
Areas of woodlands suitable for grazing are the pine woodlands in the area called the Forested Coastal Plain. These produce a fairly large amount of forage plants as a part of the woodland plant community. Other wooded areas can also be grazed conservatively if the timber and

Following are suggestions for proper salting:

1. Salt, plus a calcium and phosphorus mineral mixture, should be available to cattle on native ranges throughout the year.
2. The location of salt, minerals, and supplementary feeds should be changed periodically to lightly grazed areas.
3. For mature cattle, allow 20 to 25 pounds of salt per head annually. For sheep, allow 3 to 4 pounds per year.
4. Additional minerals recommended by the experiment station should also be made available to livestock on the range.

Management of Soils for Wildlife [6]

This section tells about the potential of the soils of Baldwin County as habitats for various kinds of game animals and birds. The kinds of game animals and birds that are most common in the county are squirrel, rabbit, quail, and mourning dove. Deer and wild turkey are plentiful in the northern one-half of the county where a large acreage is wooded. The most common fur-bearing and predatory animals are raccoon, opossum, fox, bobcat,



The areas of Tidal marsh are nearly level or concave. They are at an elevation of 2 feet above to 2 feet below the level of the gulf. The slight difference in elevation has had a great effect on the dominant vegetation. All of this land type is very poorly drained, and water is near the surface or ponded on the surface most of the time. At high tide, especially during storms, much of it is flooded by salt water from the gulf.

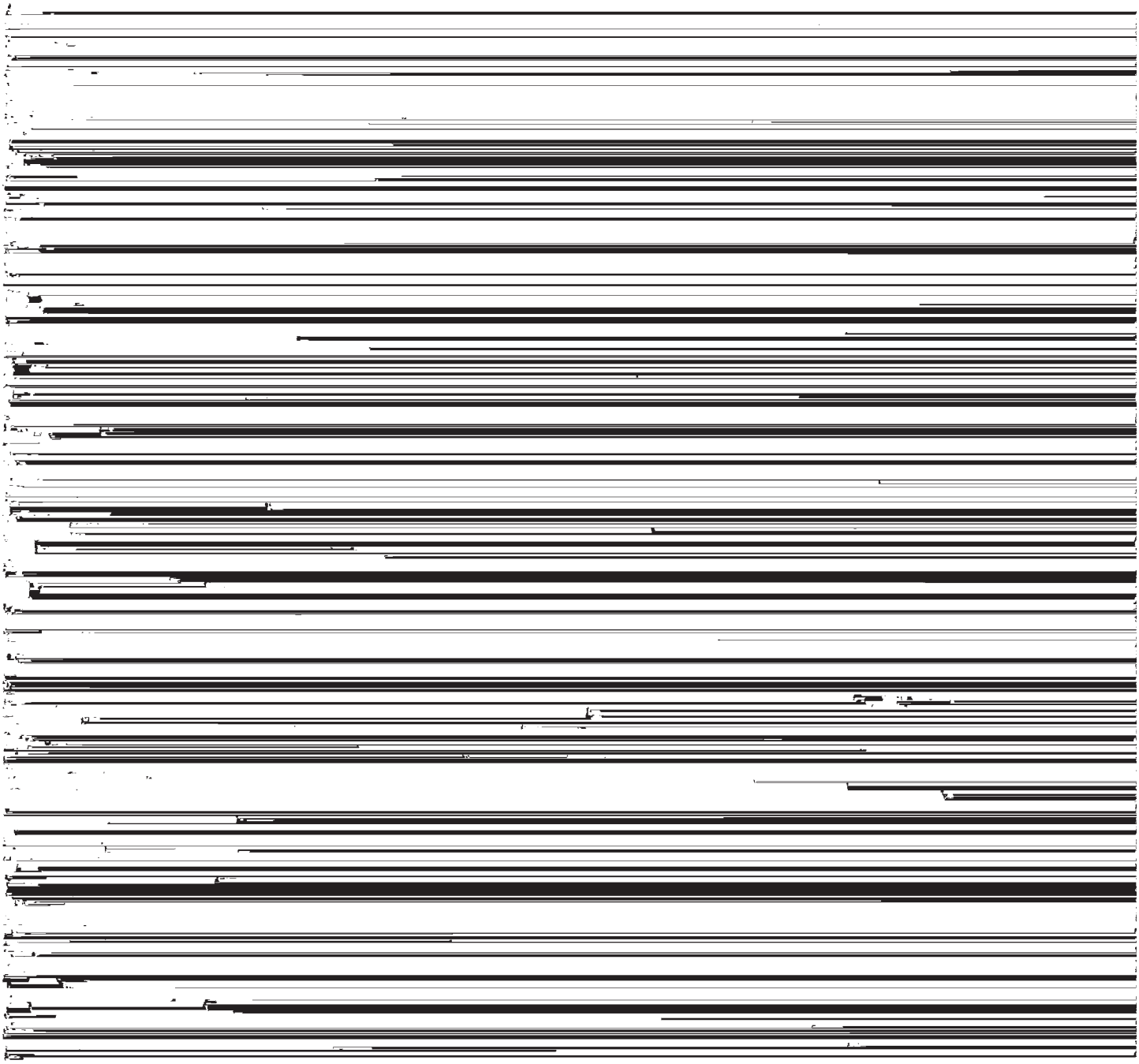
The soil material near the shore consists of sand, but farther back from the shore it is mainly clay or silty clay. Most of the soil material is gray, but there are some mottles of pale yellow and brown.

The vegetation consists mainly of a dense growth of

streams, permeability is moderate to rapid because the soil material is coarse textured.

The flood plains of the Mobile, Tensaw, Fish, and Styx Rivers, and some of the lands adjoining them are favorable habitats for deer, turkey, and squirrel. Black bear frequent the more remote areas. These types of wildlife benefit from forestry practices that increase their principal food—acorns and hickory nuts. Hardwoods, such as ash, maple, gum, and elm, should be cut selectively to create openings in the forest where haw, swamp dogwood, grape, holly, and other shrubs can grow. Selective cutting would provide additional food for wildlife.

Fescue and whiteclover can be planted for deer and



suitable for deer and turkey. Ryegrass, crimson clover, or chufa can be planted in openings to supply winter food for deer and turkey.

WILDLIFE SITE 4

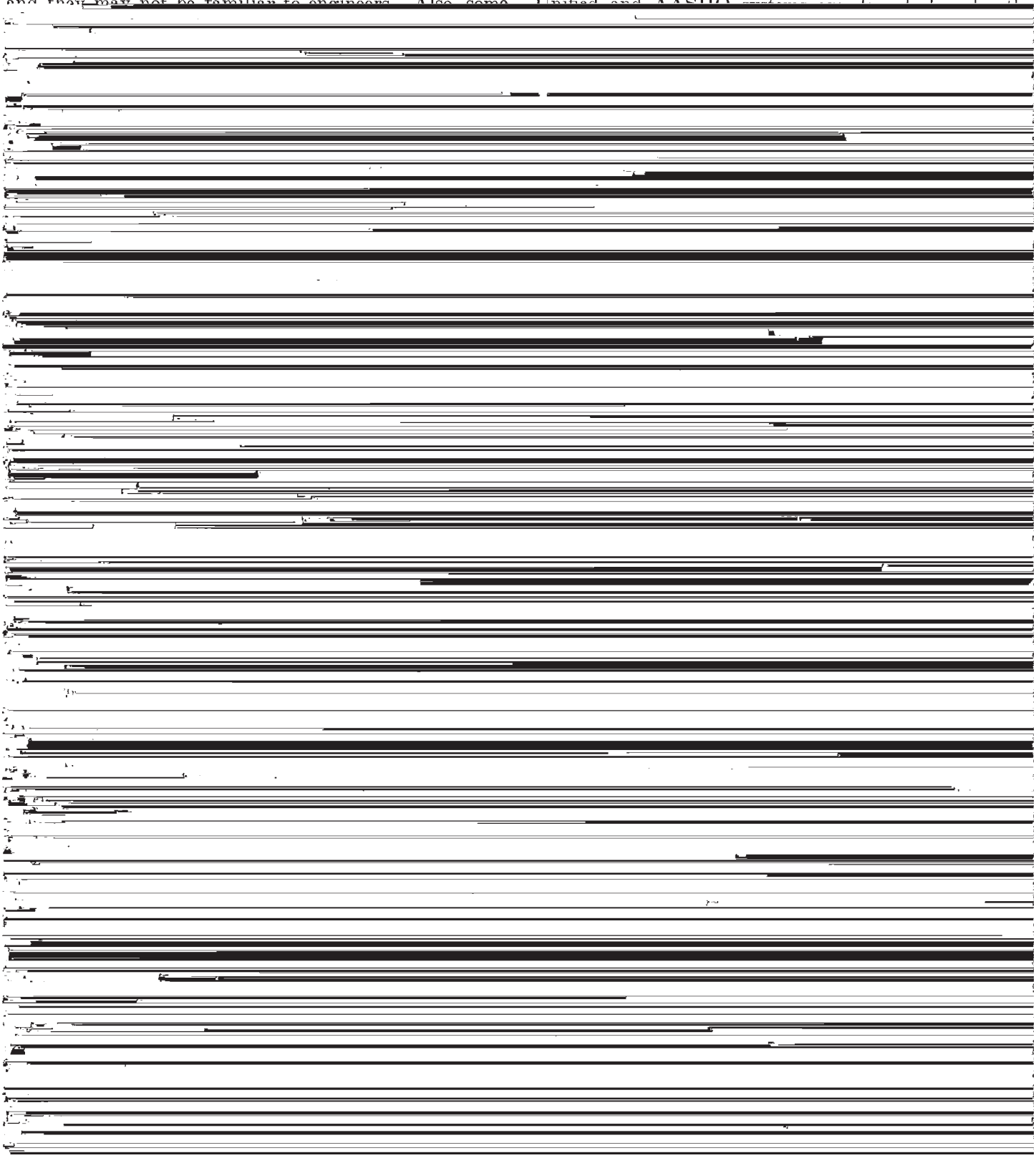
This site consists of sandy, droughty soils that are nearly level or gently sloping. The soils are low in ca[illegible] slowly permeable material, and the soil material to a depth of 2 to 4 feet varies in texture and in permeability. Soils of the following series are in this site:

Bowie.
Cuthbert.
Sunsweet.

[illegible]

Some of the terms used in this section and in other parts of the report are those employed by soil scientists, and they may not be familiar to engineers. Also, some

and clay in the soil. Then each important layer is classified according to the Unified and AASHO systems. The



dried to the proper moisture content needed for compaction. Therefore, a clayey soil is given the rating of poor for grading in wet weather.

The suitability of the soil material for road subgrade and for road fill depends largely on the texture of the soil material and on its normal content of water. A highly plastic soil material is given a rating of poor for road subgrade and poor or fair for road fill depending on its normal content of water and the ease with which the soil material can be handled, dried, and compacted.

In evaluating the features that affect the vertical alinement of highways, features that influence the grade of a road are indicated. Also indicated are drainage conditions that might be unfavorable for the construction of highways. Many of the soils have a high perched water table that makes them poorly suited to the construction of highways. In addition, seepage on the back slopes of cuts may cause settling or sliding of the overlying material, and the need for interceptor ditches and drains should therefore be determined. Because of the perched

pond, because the soils are unsuitable. Many of the farms, however, have a site that is suitable for a dug pond. On some of the farms, certain areas are better used for a pond than for other purposes. A pond increases the value of the farm, and it provides water for livestock. A pond also is valuable for recreation, and it provides water for fire protection if it is located near buildings. A farm pond is costly to construct. Therefore, a technician of the Soil Conservation Service should be asked to help select a site that is suitable and to help in designing the pond.

The factors that affect drainage are described in table 10, as well as some of the factors that affect the suitability of the soils for irrigation, terraces and diversions, and waterways. Factors that influence the suitability of the soils for irrigation include the moisture-holding capacity and the capacity of the surface layer to take in water. The construction or maintenance of irrigation structures may also be impaired by obstacles to excavating or to the use of canals.

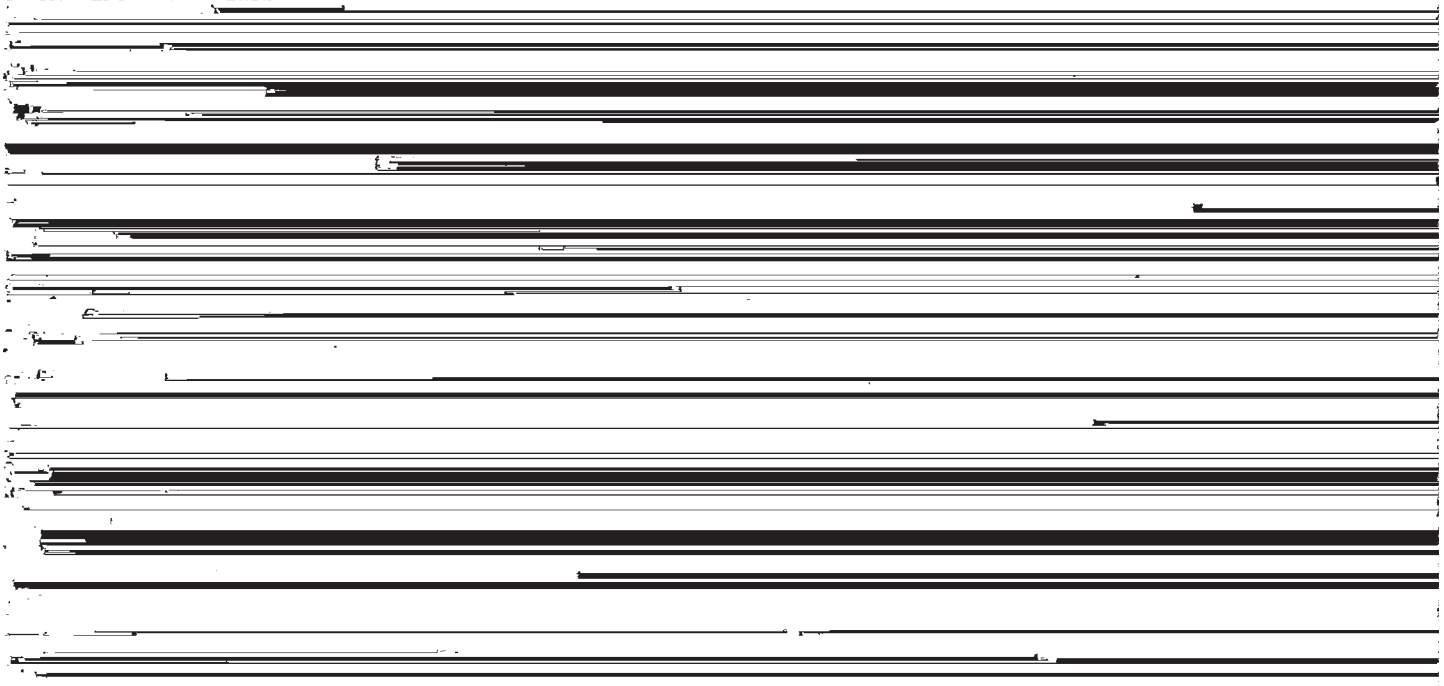


TABLE 9.—*Brief description of soils in Baldwin County and*

Map symbol	Soil [1]	Depth to seasonally high water table	Soil description [2]	Depth from surface	Classification
					USDA
		Feet		*Inches*	
BoB	Bowie fine sandy loam, 2 to 5 percent slopes.	3	½ to 1 foot of moderately well drained fine sandy loam over 2 feet of sandy clay loam to sandy clay; formed in beds of sandy clay loam to clay.	0 to 12	Fine sandy loam
BoB2	Bowie fine sandy loam, 2 to 5 percent slopes, eroded.			12 to 36	Sandy clay loam to sandy clay.
BoC	Bowie fine sandy loam, 5 to 8 percent slopes.			36 to 77+	Clay
BoD	Bowie fine sandy loam, 8 to 12 percent slopes.				
BtB	Bowie fine sandy loam, thin solum, 2 to 5 percent slopes.	2½	⅝ foot of moderately well drained fine sandy loam over 1¼ feet of fine sandy clay loam or clay loam; formed in beds of sandy clay loam to clay.	0 to 8	Fine sandy loam
BtC	Bowie fine sandy loam, thin solum, 5 to 8 percent slopes.			8 to 23	Fine sandy clay loam, or clay loam.
				23 to 35+	Clay
CaB	Cahaba fine sandy loam, 2 to 5 percent slopes.	4	1¼ feet of well-drained fine sandy loam or sandy loam over 1⅓ feet of sandy clay loam; formed in alluvium of sandy clay loam to sandy clay.	0 to 15	Fine sandy loam or sandy loam.
				15 to 31	Sandy clay loam
				31 to 52+	Sandy clay loam to sandy clay.
CgA	Carnegie very fine sandy loam, 0 to 2 percent slopes.	4	⅝ foot of well-drained very fine sandy loam over 2½ feet of clay loam or sandy clay loam; formed in sandy clay loam to sandy clay.	0 to 10	Very fine sandy loam
CgB	Carnegie very fine sandy loam, 2 to 5 percent slopes.			10 to 40	Clay loam or sandy clay loam.
CgB2	Carnegie very fine sandy loam, 2 to 5 percent slopes, eroded.			40 to 52	Sandy clay
CgC	Carnegie very fine sandy loam, 5 to 8 percent slopes.				
CgC2	Carnegie very fine sandy loam, 5 to 8 percent slopes, eroded.				
CgD	Carnegie very fine sandy loam, 8 to 12 percent slopes.				
CgD2	Carnegie very fine sandy loam, 8 to 12 percent slopes, eroded.				
Co	Coastal beaches.	0	10 to 20 feet of wet sand	0 to 240	Sand
CtB	Cuthbert fine sandy loam, 2 to 5 percent slopes.	2	¾ foot of moderately well drained fine sandy loam over ¾ foot of sandy clay; formed in beds of silty clay, clay, sandy loam, or clay.	0 to 9	Fine sandy loam
				9 to 18	Sandy clay
CtC	Cuthbert fine sandy loam, 5 to 8 percent slopes.			18 to 82	Silty clay, clay, sandy loam, or sandy clay.
CtD	Cuthbert fine sandy loam, 8 to 12 percent slopes.				
CtE	Cuthbert fine sandy loam, 12 to 17 percent slopes.				
EuB	Eustis loamy fine sand, 0 to 5 percent slopes.	6	3 feet of excessively drained loamy fine sand over heavy sandy loam or beds of loamy fine sand and sand.	0 to 37	Loamy fine sand
EuC	Eustis loamy fine sand, 5 to 8 percent slopes.			37 to 54+	Heavy sandy loam
EuD	Eustis loamy fine sand, 8 to 12 percent slopes.				
FaA	Faceville fine sandy loam, 0 to 2 percent slopes.	3½	½ foot of well-drained fine sandy loam over 4 feet of loam and clay loam; formed in beds of loam to sandy clay loam.	0 to 7	Fine sandy loam
FaB	Faceville fine sandy loam, 2 to 5 percent slopes.			7 to 55	Loam and clay loam
FaB2	Faceville fine sandy loam, 2 to 5 percent slopes, eroded.			55 to 60+	Clay loam
FaC	Faceville fine sandy loam, 5 to 8 percent slopes.				
FaC2	Faceville fine sandy loam, 5 to 8 percent slopes, eroded.				

See footnotes at end of table.

their estimated physical properties significant to engineering

Classification—Continued		Percentage passing sieve—			Permeability	Available water capacity	Reaction	Shrink-swell potential
Unified	AASHO	No. 4	No. 10	No. 200				
					Inches per hour	*Inches per inch of depth*		
SM	A–4	95–100	95–100	35–45	2. 0 to 10. 0	0. 07 to 0. 10	4. 5 to 5. 5	Low.
CL, SM–SC, or ML–CL.	A–4, A–2	95–100	65–100	30–60	0. 8 to 2. 0	0. 10 to 0. 13	4. 5 to 5. 0	Moderate.
CL or CH	A–6 or A–7–6	95–100	95–100	50–85	0. 2 to 0. 8	0. 07 to 0. 08	4. 5 to 5. 0	High.
SM	A–4	95–100	90–100	35–45	2. 0 to 10. 0	0. 07 to 0. 10	5. 1 to 5. 5	Low.
CL, SM–SC, or ML–CL.	A–4	95–100	65–100	30–60	0. 8 to 2. 0	0. 10 to 0. 13	5. 1 to 5. 5	Moderate.
CL or CH	A–6 or A–7–6	95–100	95–100	50–85	0. 2 to 0. 8	0. 07 to 0. 08	5. 1 to 5. 5	High.
SM	A–4	100	100	35–45	2. 0 to 10. 0	0. 07 to 0. 10	5. 1 to 6. 0	Low.
SM, ML–CL, or CL	A–4	100	100	35–55	0. 8 to 2. 0	0. 08 to 0. 12	4. 5 to 5. 0	Moderate.
ML–CL, or CL	A–4 or A–6	100	100	50–70	0. 2 to 0. 8			Moderate.
SM or ML–CL	A–2	90–95	90–95	30–35	2. 0 to 10. 0	0. 08 to 0. 12	5. 1 to 6. 0	Low.
CL	A–6	90–100	90–95	50–60	0. 8 to 2. 0	0. 08 to 0. 15	5. 1 to 5. 5	Moderate.
ML–CL	A–6	100	100	50–60	0. 2 to 0. 8	0. 07 to 0. 08	5. 1 to 5. 5	Moderate.
SP	A–3	100	100	0–5	10. 0+	0. 03 to 0. 04		Low.
SM or ML	A–2–4 or A–4	90–100	85–100	35–55	2. 0 to 10. 0	0. 03 to 0. 07	4. 5	Low.
SC, CL, or ML-CL	A–4, A–6, or A–7–6.	98–100	95–100	45–65	0. 2 to 0. 8	0. 07 to 0. 08	4. 5	Moderate.
ML–CL or CL	A–7–6 or A–4	100	100	60–95	0 to 0. 2	0. 05 to 0. 08	4. 5	Moderate.
SM	A–2–4	100	100	15–25	10. 0+	0. 03 to 0. 07	5. 1 to 5. 5	Low.
SM or CL	A–2–4 or A–4	100	100	20–55	6. 0 to 10. 0+	0. 03 to 0. 07	5. 1 to 5. 5	Low.
ML or SM	A–4	100	100	40–60	2. 0 to 10. 0	0. 05 to 0. 10	4. 5 to 5. 0	Low.
CL or ML–CL	A–4, A–6	100	100	55–70	0. 8 to 2. 0	0. 10 to 0. 15	4. 5 to 5. 0	Moderate.
CL or SC	A–4, A–6	100	100	45–65	0. 2 to 2. 0	0. 10 to 0. 15	4. 5 to 5. 0	Moderate.

TABLE 9.—*Brief description of soils in Baldwin County and their*

Map symbol	Soil [1]	Depth to seasonally high water table	Soil description [2]	Depth from surface	Classification
					USDA
		Feet		*Inches*	
FsB	Flint silt loam, 2 to 5 percent slopes.	1	½ foot of moderately well drained silt loam and loam over 1½ feet of silty clay to clay; formed in alluvium of silty clay to clay.	0 to 6 6 to 24 24 to 38+	Silt loam and loam Silty clay to clay Clay
GoA	Goldsboro fine sandy loam, 0 to 2 percent slopes.	2	⅝ foot of moderately well drained fine sandy loam over 1¾ feet of fine sandy loam; formed in beds of sandy loam to sandy clay loam.	0 to 10 10 to 31 31 to 60+	Fine sandy loam Fine sandy loam Fine sandy loam
GoB	Goldsboro fine sandy loam, 2 to 5 percent slopes.				
GoC	Goldsboro fine sandy loam, 5 to 8 percent slopes.				
Gr	Grady soils.	0	1⅓ feet of poorly drained or very poorly drained silty clay loam over 2⅙ feet of clay; formed in deposits of sandy clay loam to clay.	0 to 10 10 to 36 36+	Silty clay loam Clay Sandy clay
GvA	Greenville loam, 0 to 2 percent slopes.	5	½ foot of well-drained loam over 6½ feet of sandy clay loam or clay loam; formed in clay loam.	0 to 6 6 to 60 60 to 72	Loam Sandy clay loam Clay loam
GvB	Greenville loam, 2 to 5 percent slopes.				
GvB2	Greenville loam, 2 to 5 percent slopes, eroded.				
GvC2	Greenville loam, 5 to 8 percent slopes, eroded.				
IrA	Irvington loam, 0 to 2 percent slopes.	2	⅚ foot of moderately well drained loam to fine sandy loam over 3⅙ feet of fine sandy clay loam; formed in	0 to 10 10 to 48 48 to 60+	Loam to heavy fine sandy loam. Fine sandy clay loam Sandy clay loam and
IrB	Irvington loam, 2 to 5 percent slopes.				

estimated physical properties significant to engineering—Continued

Classification—Continued		Percentage passing sieve—			Permeability	Available water capacity	Reaction	Shrink-swell potential
Unified	AASHO	No. 4	No. 10	No. 200	*Inches per hour*	*Inches per inch of depth*		
ML	A–4	100	100	50–65	0. 8 to 2. 0	0. 05 to 0. 10	4. 5 to 5. 5	Moderate.
CL	A–6, A–7	100	100	60–75	0. 2 to 0. 8	0. 08 to 0. 15	4. 5 to 5. 0	Moderate.
CH	A–7	100	100	60–75	0. 2 to 0. 8	0. 05 to 0. 10	4. 5 to 5. 0	High.
SM or ML	A–2–4 or A–4	100	97–100	20–50	2. 0 to 10. 0	0. 05 to 0. 10	4. 5 to 5. 5	Low.
ML, ML–CL, or SM	A–2–4 or A–4	100	98–100	20–65	0. 8 to 2. 0	0. 08 to 0. 13	4. 5 to 5. 0	Low.
ML–CL or SM	A–2–4 or A–4	100	98–100	15–55	0. 2 to 0. 8	0. 08 to 0. 13	4. 5 to 5. 0	Low.
ML, CL or SC	A–2, A–4, A–6	100	100	30–60	0. 2 to 0. 8	0. 10 to 0. 15	4. 5 to 5. 0	Moderate.
CH	A–6, A–7		100	60–70	0 to 0. 2	0. 10 to 0. 13	4. 5 to 5. 0	High.
SC or CL	A–6, A–7	75–100	65–100	35–65	0 to 0. 2	0. 08 to 0. 12	4. 5 to 5. 0	Moderate.
ML, ML–CL or SM	A–4 or A–2–4	100	98–100	30–70	0. 8 to 2. 0	0. 07 to 0. 10	4. 5 to 5. 5	Low.
CL or SM–SC	A–4 or A–6	100	98–100	35–60	0. 8 to 2. 0	0. 07 to 0. 13	4. 5 to 5. 5	Moderate.
SC, CL or SM	A–4	100	98–100	40–55	0. 8 to 2. 0	0. 07 to 0. 12	4. 5 to 5. 5	Low.

TABLE 9.—*Brief description of soils in Baldwin County and their*

Map symbol	Soil [1]	Depth to seasonally high water table	Soil description [2]	Depth from surface	Classification
					USDA
		Feet		*Inches*	
Lm	Leaf silt loam.	0	⅙ foot of poorly drained silt loam over 3 feet of silty clay to clay; formed in alluvium consisting of clay and silty clay.	0 to 2 2 to 40	Silt loam Silty clay and clay
Ls	Leon sand.	0	3⅓ feet or more of poorly drained sand; formed in sand.	0 to 40	Sand
LyA	Lynchburg fine sandy loam, 0 to 2 percent slopes.	1	⅚ foot of somewhat poorly drained fine sandy loam over 3½ feet of fine sandy loam to sandy loam; formed in sandy loam.	0 to 10 10 to 42	Fine sandy loam Fine sandy loam to sandy loam.
LyB	Lynchburg fine sandy loam, 2 to 5 percent slopes.				
LyC	Lynchburg fine sandy loam, 5 to 8 percent slopes.				
MgA	Magnolia fine sandy loam, 0 to 2 percent slopes.	4	½ foot of well-drained fine sandy loam over 5 feet of sandy clay loam to clay loam; formed in clay loam and sandy clay loam.	0 to 7 7 to 66+	Fine sandy loam Sandy clay loam to clay loam.
MgB	Magnolia fine sandy loam, 2 to 5 percent slopes.				
MgB2	Magnolia fine sandy loam, 2 to 5 percent slopes, eroded.				
MgC2	Magnolia fine sandy loam, 5 to 8 percent slopes, eroded.				
Mn	Mantachie silt loam.	1	¼ foot of somewhat poorly drained silt loam over 3 feet or more of silty clay and clay; formed in alluvium.	0 to 3 3 to 37+	Silt loam Silty clay and clay
MrA	Marlboro very fine sandy loam, 0 to 2 percent slopes.	3+	⅔ foot of well-drained very fine sandy loam over 5⅔ feet of fine sandy clay loam; formed in loam to sandy clay.	0 to 8 8 to 52 52 to 76	Very fine sandy loam Fine sandy clay loam Fine sandy clay loam
MrB	Marlboro very fine sandy loam, 2 to 5 percent slopes.				
MrB2	Marlboro very fine sandy loam, 2 to 5 percent slopes, eroded.				
My	Myatt very fine sandy loam.	0	1⅔ feet of poorly drained very fine sandy loam over 1 foot of sandy clay loam; formed in alluvium consisting of heavy sandy clay loam to clay.	0 to 20 20 to 32 32 to 52+	Very fine sandy loam Sandy clay loam Heavy sandy clay loam
NoA	Norfolk fine sandy loam, 0 to 2 percent slopes.	3	2⅔ feet of well-drained loamy sand to heavy sandy loam	0 to 32	Loamy sand to heavy sandy loam.

[redacted]

estimated physical properties significant to engineering—Continued

Classification—Continued		Percentage passing sieve—			Permeability	Available water capacity	Reaction	Shrink-swell potential
Unified	AASHO	No. 4	No. 10	No. 200				
					Inches per hour	*Inches per inch of depth*		
ML	A–4	100	100	50–60	0. 8 to 2. 0	0. 10 to 0. 15	5. 1 to 5. 5	Low.
CL or CH	A–6, A–7	100	100	60–70	0. 2 to 0. 8	0. 07 to 0. 15	4. 5 to 5. 5	Moderate to

TABLE 9.—*Brief description of soils in Baldwin County and their*

Map symbol	Soil [1]	Depth to seasonally high water table	Soil description [2]	Depth from surface	Classification
					USDA
		Feet		*Inches*	
PmB	Plummer loamy sand, 0 to 5 percent slopes.	0	4½ feet of poorly drained loamy sand over 4 feet of sandy clay loam to clay; formed in sandy clay loam to clay.	0 to 52	Loamy sand
PmC	Plummer loamy sand, 5 to 12 percent slopes.			52 to 96+	Sandy clay loam to clay
RaA	Rains fine sandy loam, 0 to 2 percent slopes.	0	2½ feet of poorly drained fine sandy loam over 1 foot of fine sandy clay loam; formed in sandy clay.	0 to 29	Fine sandy loam
RaB	Rains fine sandy loam, 2 to 5 percent slopes.			29 to 42	Fine sandy clay loam
RaC	Rains fine sandy loam, 5 to 8 percent slopes.			42 to 70+	Sandy clay
RbA	Red Bay fine sandy loam, 0 to 2 percent slopes.	6	1¼ feet of well-drained fine sandy loam over 3 feet of sandy loam to sandy clay loam; formed in sandy loam and sandy clay loam.	0 to 15	Fine sandy loam
RbB	Red Bay fine sandy loam, 2 to 5 percent slopes.			15 to 50	Sandy loam to sandy clay loam.
				50 to 80+	Sandy loam
Rr	Robertsdale loam.	1	½ foot of somewhat poorly drained loam over 2½ feet of light clay loam to fine sandy clay loam.	0 to 7	Loam
				7 to 36	Light clay loam to fine sandy clay loam.
				36 to 58+	Fine sandy clay loam to clay loam.
RuA	Ruston fine sandy loam, 0 to 2 percent slopes.	5	2½ feet of well-drained sandy loam over 1 foot of coarse sandy clay loam; formed in beds of sandy loam and sandy clay loam.	0 to 29	Fine sandy loam to sandy loam.
RuB	Ruston fine sandy loam, 2 to 5 percent slopes.			29 to 41	Coarse sandy clay loam
RuB2	Ruston fine sandy loam, 2 to 5 percent slopes, eroded.			41 to 52	Sandy loam
RuC	Ruston fine sandy loam, 5 to 8 percent slopes.				
RuC2	Ruston fine sandy loam, 5 to 8 percent slopes, eroded.				
RuD	Ruston fine sandy loam, 8 to 12 percent slopes.				
SbA	Savannah very fine sandy loam, 0 to 2 percent slopes.	1	½ foot of moderately well drained very fine sandy loam over 3⅓ feet of loam; formed in loam and sandy clay loam.	0 to 7	Very fine sandy loam
				7 to 47+	Loam
ScA	Scranton loamy fine sand, 0 to 2 percent slopes.	1	3 feet of somewhat poorly drained loamy sand over 1 foot or more of sand; formed in sand and loamy sand.	0 to 39	Loamy fine sand
ScB	Scranton loamy fine sand, 2 to 5 percent slopes.			39 to 52+	Sand
SsB	St. Lucie sand, 0 to 5 percent slopes.	6	6 feet or more of excessively drained sand; formed in sand.	0 to 66	Sand
SuB2	Sunsweet fine sandy loam, 2 to 5 percent slopes, eroded.	2	¾ foot of fine sandy loam over 3½ feet of sandy clay and clay; formed in sandy clay loam, sandy clay, and clay.	0 to 9	Fine sandy loam
SuC2	Sunsweet fine sandy loam, 5 to 8 percent slopes, eroded.			9 to 50	Sandy clay, clay
SuD2	Sunsweet fine sandy loam, 8 to 17 percent slopes, eroded.				
TfA	Tifton very fine sandy loam, 0 to 2 per-	3	1½ feet of very fine sandy loam	0 to 15	Very fine sandy loam

estimated physical properties significant to engineering—Continued

Classification—Continued		Percentage passing sieve—			Permeability	Available water capacity	Reaction	Shrink-swell potential
Unified	AASHO	No. 4	No. 10	No. 200				
					Inches per hour	*Inches per inch of depth*		
SM	A–2–4	100	98–100	15–35	2. 0 to 10. 0	0. 05 to 0. 07	4. 5 to 5. 5	Low.
SM, SC, CH, or CL	A–2–4 or A–7–6	100	98–100	15–75	0 to 0. 2	0. 05 to 0. 08	4. 5 to 5. 0	Low to high.
ML	A–4	100	98–100	50–60	0. 8 to 2. 0	0. 07 to 0. 10	4. 5 to 5. 0	Low.
CL	A–6	100	98–100	50–55	0. 2 to 0. 8	0. 08 to 0. 12	4. 5 to 5. 0	Low.

TABLE 10.—*Engineering*

[Dashes indicate information is not

Soil series and map symbol [1]	Suitability of soil material for—				Suitability as source of—		Features affecting vertical alinement for highways
	Grading in wet weather	Road subgrade	Road fill	Fields for septic tanks	Topsoil [2]	Sand	Material
Bowie (BoB, BoB2, BoC	Fair for	Fair for	Fair	Fair	Good	Not suitable	Plastic [illegible]

interpretation of soils

applicable or there are no adverse features]

Features affecting vertical alinement for highways—Continued	Soil features affecting agricultural structures					
	Farm ponds		Drainage structures [3]	Irrigation structures	Terraces and diversions [4]	Waterways [5]
Drainage	Reservoir areas [6]	Embankments				
High water table	Slow seepage	Moderate strength and stability; moderate to slow permeability.	Not needed	Moderate to low moisture-holding capacity and slow intake rate.	Degree of slope; hazard of erosion.	Length and degree of slope; present erosion.
High water table	Slow seepage	Low to moderate strength and stability; moderate to slow permeability.	Not needed	Low moisture-holding capacity and slow intake rate.	Degree of slope; hazard of erosion; slow permeability.	Length and degree of slope; present erosion.
	Moderate seepage.	High strength and stability; moderate permeability.[7]	Not needed	Moderate to low moisture-holding capacity; medium intake rate.	Degree of slope; hazard of erosion.	Length and degree of slope; present erosion.
	Moderate seepage.	High strength and stability; moderate permeability.	Not needed	Moderate moisture-holding capacity; slow intake rate.	Degree of slope; hazard of erosion.	Length and degree of slope; present erosion.
Very rapid internal movement of water.	Not suitable	Not suitable	Not needed	Not suitable	Nonagricultural.	Nonagricultural.
High water table	Slow seepage	Moderate to low strength and stability; slow permeability.	Not needed	Low moisture-holding capacity; slow intake rate.	Degree of slope; hazard of erosion; slow permeability and intake rate.	Length and degree of slope; present erosion.
	Excessive seepage; ordinarily not suitable.	High strength; low stability; rapid permeability.	Not needed	Low or very low moisture-holding capacity; rapid intake rate.	Usually not terraced, because soils are unstable.	Unstable soils; serious hazard of erosion.
	Moderate seepage.	Moderate strength and stability; moderate to slow permeability.	Not needed	Moderate to low moisture-holding capacity; slow intake rate.	Degree of slope; hazard of erosion.	Length and degree of slope; present erosion.
High water table	Slow seepage	Low strength and stability; slow or very slow	Slow to very slow permeability	Moderate to low moisture-holding capacity;	Not needed	Not needed.

TABLE 10.—*Engineering*

Soil series and map symbol [1]	Suitability of soil material for—				Suitability as source of—		Features affecting vertical alinement for highways
	Grading in wet weather	Road subgrade	Road fill	Fields for septic tanks	Topsoil [2]	Sand	Material
Greenville (GvA, GvB, GvB2, GvC2).	Fair to poor	Fair	Fair	Good	Good	Not suitable	
Irvington (IrA, IrB)	Fair	Fair	Fair	Fair	Good	Not suitable	
Iuka (Iu)	Fair	Fair	Fair	Poor	Fair	Not suitable	
Izagora (IzA, IzB)	Fair to poor	Fair	Fair	Fair	Good	Not suitable	
Kalmia (KaA, KaB)	Fair to good.	Fair to good.	Fair to good.	Good	Good	Substratum fair.	
Klej (KlB, KlC)	Fair	Poor	Fair	Good	Fair	Poorly graded sands and some fines.	Unstable substratum of loamy fine sand.
Lakeland (LaB, LaC, LaD,	Good	Fair	Fair	Good	Poor	Poorly graded	

interpretation of soils—Continued

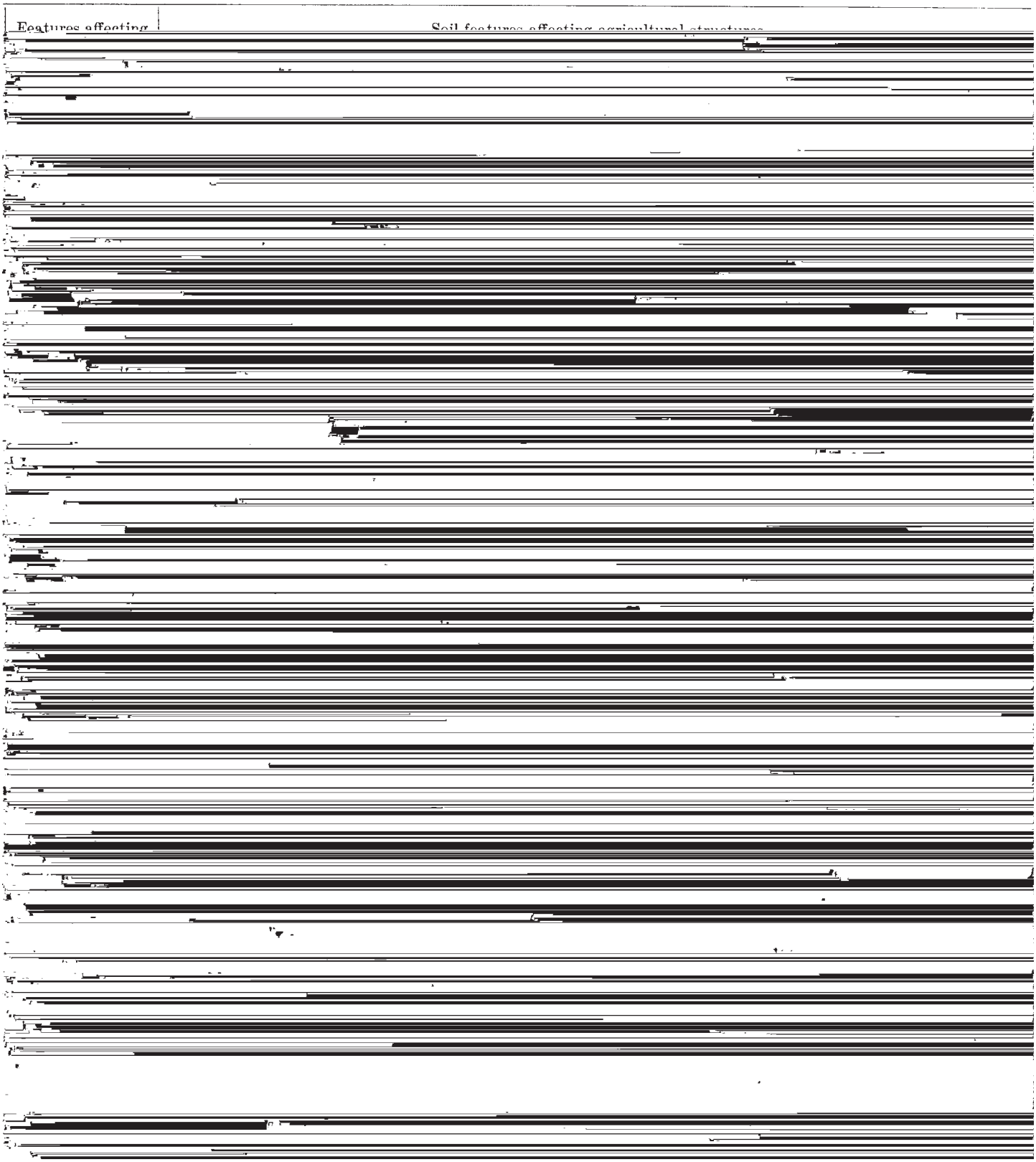


TABLE 10.—*Engineering*

Soil series and map symbol [1]	Suitability of soil material for—				Suitability as source of—		Features affecting vertical alinement for highways
	Grading in wet weather	Road subgrade	Road fill	Fields for septic tanks	Topsoil [2]	Sand	Material
Magnolia (MgA, MgB, MgB2, MgC2).	Fair to poor.	Fair	Fair	Good	Good	Not suitable	
Mantachie (Mn)	Poor	Poor	Poor	Poor	Fair	Not suitable	Plastic clay close to surface.
Marlboro (MrA, MrB, MrB2)	Fair to poor.	Fair	Fair	Fair	Good	Not suitable	
Myatt (My)	Fair	Fair	Fair	Poor	Poor	Not suitable	
Norfolk (NoA, NoB, NoB2, NoC).	Poor to good.	Poor to good.	Poor to good.	Good	Good	Not suitable	
Okenee (Ok)	Poor	Poor	Poor	Poor	Good	Not suitable	High content of organic matter.
Orangeburg (OrA, OrB, OrB2, OrC, OrD2).	Fair	Fair	Fair	Good	Good	Not suitable	
Plummer (PmB, PmC)	Poor below 52 inches; good above.	Poor below 52 inches; good above.	Poor below 52 inches; good above.	Poor	Poor	Wet, poorly graded loamy sand.	Variable
Rains (RaA, RaB, RaC)	Poor	Poor	Poor	Poor	Poor	Not suitable	Variable
Red Bay (RbA, RbB)	Good	Good	Good	Good	Good	Sand and gravel in places.	
Robertsdale (Rr)	Fair	Fair	Fair	Poor	Good	Not suitable	

See footnotes at end of table.

interpretation of soils—Continued

Features affecting vertical alinement for highways—Continued	Soil features affecting agricultural structures					
	Farm ponds		Drainage structures [3]	Irrigation structures	Terraces and diversions [4]	Waterways [5]
Drainage	Reservoir areas [6]	Embankments				

TABLE 10.—*Engineering*

Soil series and map symbol [1]	Suitability of soil material for—				Suitability as source of—		Features affecting vertical alinement for highways
	Grading in wet weather	Road subgrade	Road fill	Fields for septic tanks	Topsoil [2]	Sand	Material
Ruston (RuA, RuB, RuB2, RuC, RuC2, RuD).	Good	Good	Good	Good	Good	Not suitable	
Savannah (SbA)	Fair to poor.	Fair	Fair	Fair	Good	Not suitable	
Scranton (ScA, ScB)	Good	Poor to good.	Poor to good.	Poor	Fair	Wet, poorly graded loamy sand.	
St. Lucie (SsB)	Good	Poor	Poor	Good	Not suitable.	Good	Unstable sand
Sunsweet (SuB2, SuC2, SuD2)	Fair	Fair	Fair	Poor	Fair	Not suitable	
Tifton (TfA, TfB, TfB2, TfC, TfC2).	Fair	Fair	Fair	Fair	Good	Not suitable	
Wahee (WaA, WaB)	Poor	Poor	Poor	Poor	Fair	Not suitable	Plastic clay close to surface.

[1] Except for Coastal beaches, miscellaneous land types, undifferentiated mapping units, and complexes are not included in table.

[2] Rating applies to surface layer only.

[illegible] percent need terraces. The type of terrace, distance between terraces, and the difficulty of constructing the terrace depend on the features described in this column; they vary because of differences [illegible]

interpretation of soils—Continued

Features affecting vertical alinement for highways—Continued	Soil features affecting agricultural structures					
	Farm ponds		Drainage structures [3]	Irrigation structures	Terraces and diversions [4]	Waterways [5]
Drainage	Reservoir areas [6]	Embankments				
----------	Moderate seepage.	High strength and stability; moderate permeability.	Not needed-----	Moderate to low moisture-holding capacity; medium intake rate.	Degree of slope; hazard of erosion.	Length and degree of slope; present erosion.
High water table--	Slow seepage--	Moderate strength and stability; slow permeability.[7]	Slow permeability; seasonal high water table; weak fragipan.	Moderate to high moisture-holding capacity; slow intake rate.	Not needed-----	Not needed.
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

TABLE 11.—*Engineering test data* [1] *for*

Soil name and location	Parent material	Alabama Report No.	Depth	Horizon	Mechanical analysis [2]		
					Shrinkage factors		
					Limit	Ratio	Volumetric change
			Inches				*Percent*
Bowie fine sandy loam: NW¼SE¼ sec. 26, T. 4 S., R. 6 E. (Modal.)[6]	Coastal Plain sediments.	2273	2–8	A_2	16	1. 83	6
		2463	12–23	B_2	16	1. 83	9
		2444	36–77+	C_1	21	1. 73	18
NW¼NE¼SE¼ sec. 13, T. 3 S., R. 4 E. (More sandy texture than that in modal profile.)	Coastal Plain sediments.	2455	0–2	A_1			
		2370	14–34	B_2	14	1. 87	5
		2442	42–66+	C	18	1. 77	14
SE¼SW¼SE¼ sec. 13, T. 3 S., R. 4 E. (Sandy C horizon.)	Coastal Plain sediments.	2431	2–7	A_2			
		2371	11–23	B_2	18	1. 75	11
		2397	39–66+	C_2	19	1. 75	18
Cuthbert fine sandy loam: SE¼SE¼ sec. 33, T. 3 N., R. 4 E. (Modal.)	Coastal Plain sediments.	2391	0–3	A_1	18	1. 63	0
		2443	9–18	B_2	16	1. 77	16
		2402	30–58	C_1	14	1. 90	25
SE¼SW¼SE¼ sec. 13, T. 3 S., R. 4 E. (More sandy C horizon than that in modal profile.)	Coastal Plain sediments.	2433	0–3	A_1	23	1. 65	0
		2469	10–38	C_1	23	1. 63	20
		2460	50–66	C_3	17	1. 82	12
SE¼SW¼SW¼ sec. 21, T. 2 S., R. 4 E. (Ironstones in A and B horizons.)	Coastal Plain sediments.	2410	0–4	A_1			
		2465	21–43	C_2	17	1. 78	1
		2382	43–72+	D	15	1. 85	24
Goldsboro sandy loam: SW¼NW¼ sec. 33, T. 6 S., R. 5 E. (Modal.)	Coastal Plain sediments.	2450	0–6	A_1			
		2396	17–31	B_2	19	1. 74	0
		2378	60–100+	C	21	1. 71	2
Goldsboro very fine sandy loam: SE¼SE¼ sec. 26, T. 1 N., R. 2 E. (Clayey texture.)	Coastal Plain sediments.	2426	0–6	A_p	18	1. 69	0
		2376	11–31	B_2	14	1. 90	1
		2449	36–63+	C	15	1. 87	12
Goldsboro fine sandy loam: NW¼SW¼NW¼ sec. 21, T. 7 S., R. 6 E. (More sandy texture than that in profile of Goldsboro very fine sandy loam.)	Coastal Plain sediments.	2416	0–3	A_1			
		2388	10–22	B_2	17	1. 78	0
		2399	30–59+	C			
Greenville loam: NE¼NE¼ sec. 21, T. 5 S., R. 4 E. (Modal.)	Coastal Plain sediments.	2461	0–4	A_p	28	1. 54	6
		2383	17–72	B_{21}	20	1. 71	6
		2372	72–100+	B_{22}	20	1. 71	8
NW¼NW¼ sec. 18, T. 4 S., R. 3 E. (Clayey texture.)	Coastal Plain sediments.	2387	0–6	A_p	17	1. 78	6
		2422	9–48	B_{21}	16	1. 78	5
		2413	48–63+	B_{22}	15	1. 83	13
Greenville sandy loam: NE¼NE¼SE¼ sec. 28, T. 5 S., R. 4 E.	Coastal Plain sediments.	2415	0–8	A_p	14	1. 83	2
		2381	8–20	B_1	12	1. 91	1
		2441	20–36	B_2	18	1. 76	7
Irvington very fine sandy loam: NW¼SW¼NW¼ sec. 10, T. 2 S., R. 3 E. (Modal.)	Coastal Plain sediments.	2473	0–3	A_1			
		2420	14–27	B_2	18	1. 77	5
		2471	72–89+	C	22	1. 71	9
NE¼SW¼NW¼ sec. 20, T. 3 S., R. 5 E. (More iron concretions and more sandy C horizon.)	Coastal Plain sediments.	2427	0–3	A_1	27	1. 43	0
		2434	9–21	B_2	17	1. 82	10
		2409	29–53	C	22	1. 65	12
SE¼SW¼SE¼ sec. 8, T. 6 S., R. 4 E. (Nearly level.)	Coastal Plain sediments.	2428	0–6	A_p	16	1. 73	10
		2448	6–23	B_{11g}	16	1. 77	10
		2435	46–66	C_1	23	1. 64	10

See footnotes at end of table.

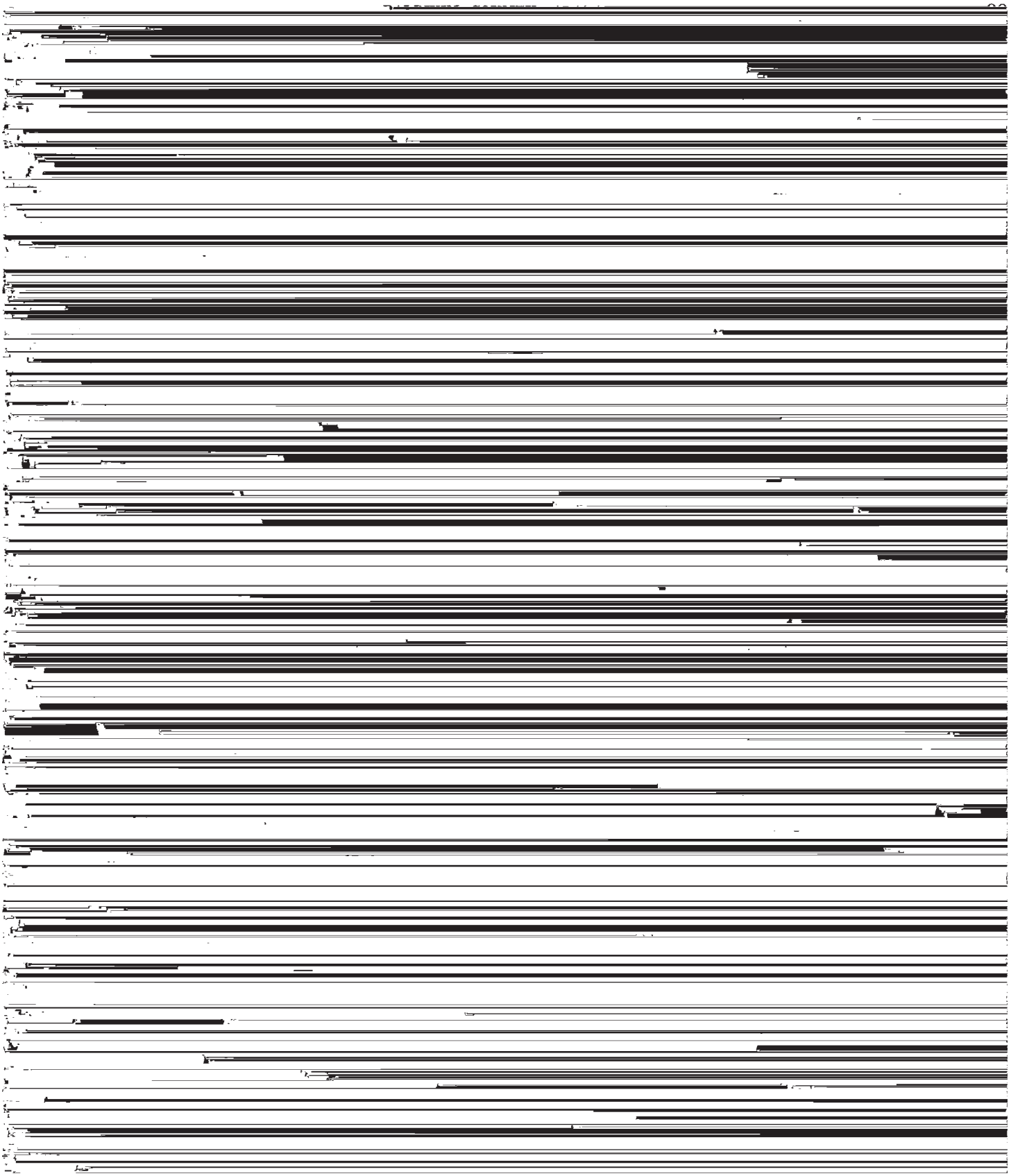


TABLE 11.—*Engineering test data* [1] *for*

Soil name and location	Parent material	Alabama Report No.	Depth	Horizon	Mechanical analysis [2]		
					Shrinkage factors		
					Limit	Ratio	Volumetric change
			Inches				*Percent*
Lakeland loamy fine sand:							
SW¼NW¼ sec. 9, T. 6 S., R. 3 E. (Modal.)	Coastal Plain sediments.	2408	0–8	A_1			
		2373	20–72	C			
		2457	72–84+	D	18	1.73	0
SW¼NW¼NW¼ sec. 22, T. 6 S., R. 4 E. (Very fine texture.)	Coastal Plain sediments.	2403	0–2	A_1			
		2414	8–18	C_1			
		2384	18–72+	C_2			
NW¼NW¼ sec. 13, T. 5 S., R. 6 E. (Coarser texture.)	Coastal Plain sediments.	2445	0–6	A_1			
		2476	12–48	C_1			
		2411	48–64+	C_2			
Marlboro very fine sandy loam:							
NE¼NW¼NE¼ sec. 9, T. 2 S., R. 3 E. (Modal.)	Coastal Plain sediments.	2453	0–4	A_1			
		2374	14–32	B_2	19	1.74	12
		2452	60–96	C	25	1.58	9
SW¼NW¼SW¼ sec. 9, T. 7 S., R 2 E. (Finer texture.)	Coastal Plain sediments.	2412	0–7	A_p			
		2369	16–41	B_2	16	1.82	13
		2436	59–70+	C_1	18	1.75	18
NW¼NW¼SW¼ sec. 33, T. 2 S., R. 2 E. (More sandy texture.)	Coastal Plain sediments.	2447	0–6	A_p	13	1.87	1
		2446	6–22	B_{21}	16	1.80	6
		2429	46–62+	C_1	14	1.85	16
Norfolk fine sandy loam:							
NW¼SE¼ sec. 9, T. 6 S., R. 3 E. (Modal.)	Coastal Plain sediments.	2404	0–6	A_p			
		2379	19–32	B_2	16	1.98	2
		2276	47–60	B_{3m}	23	1.60	2
		2458	61–88	C_1	21	1.66	8
		2386	88–97+	C_2	24	1.59	26
SW corner SW¼NW¼ sec. 20, T. 6 S., R. 3 E. (More sandy texture.)	Coastal Plain sediments.	2392	0–3	A_1			
		2377	16–28	B_{21}	12	1.93	3
		2474	55–67+	C	22	1.66	3
NW¼NW¼SE¼ sec. 8, T. 6 S., R. 4 E. (Finer texture.)	Coastal Plain sediments.	2375	0–8	A_p	16	1.80	6
		2417	8–30	B_2	19	1.76	0
		2423	55–70+	C_1	26	1.54	3
Plummer loamy sand:							
SE¼SE¼ sec. 4, T. 1 S., R. 4 E. (Modal.)	Coastal Plain sediments.	2439	0–4	A_1			
		2454	16–52	C_2			
		2464	52–64	D_1	14	1.88	7
		2466	64–96+	D_2	13	1.92	35
NE¼NW¼ sec. 2, T. 7 S., R. 4 E. (Finer texture.)	Coastal Plain sediments.	2395	0–4	A_1			
		2451	15–30	C_3			
		2472	36–42	D	17	1.79	0
NW¼NW¼SW¼ sec. 35, T. 7 S., R. 2 E. (More sandy texture.)	Coastal Plain sediments.	2470	0–6	A_1			
		2462	6–22	C_1			
		2405	22–46	C_2			
Rains fine sandy loam:							
NW¼SW¼ sec. 25, T. 5 S., R. 4 E. (Modal.)	Coastal Plain sediments.	2437	0–9	A_{1p}			
		2418	9–29	B_2	18	1.77	1
		2394	52–70+	D_2	20	1.74	12
SE¼SE¼SW¼ sec. 16, T. 4 S., R. 5 E. (Loam surface soil.)	Coastal Plain sediments.	2380	0–8	A_1	26	1.45	4
		2438	8–43	B_2	22	1.65	7
		2419	43–69+	C_1	16	1.78	8
Red Bay sandy loam:							
NW¼SW¼ sec. 33, T. 5 S., R. 3 E. (Modal.)	Coastal Plain sediments.	2390	0–7	A_p	17	1.72	0
		2421	21–33	B_{22}	16	1.85	6
		2385	50–80+	B_3	18	1.73	10

See footnotes at end of table.

soil samples taken from 35 soil profiles—Continued

Mechanical analysis [2]—Continued							Liquid limit	Plasticity index	Classification	
Percentage passing sieve [3]						Percentage smaller than 0.005 mm.[3]				
2-in.	1-in.	No. 4 (4.76 mm.)	No. 10 (2.0 mm.)	No. 40 (0.42 mm.)	No. 200 (0.074 mm.)				AASHO [4]	Unified [5]
			100	81	16	9	(7)	(7)	A-2-4(0)	SM.
		100	99	82	17	9	(7)	(7)	A-2-4(0)	SM.
			100	79	19	14	20	3	A-2-4(0)	SM.
		100	99	95	18	5	(7)	(7)	A-2-4(0)	SM.
			100	94	12	5	(7)	(7)	A-2-4(0)	SM.
		100	99	93	14	6	(7)	(7)	A-2-4(0)	SM.
			100	55	18	6	(7)	(7)	A-2-4(0)	SM.
		100	99	50	17	9	(7)	(7)	A-2-4(0)	SM.
	100	98	88	35	9	4	(7)	(7)	A-1-b(0)	SM.
			100	97	52	20	(7)	(7)	A-4(3)	ML.
		100	99	97	60	37	29	7	A-4(5)	ML-CL.
			100	96	56	37	38	12	A-6(5)	ML-CL.
			100	97	62	20	(7)	(7)	A-4(5)	ML.
		100	99	96	69	36	27	9	A-4(7)	CL.
		100	99	95	62	39	40	19	A-6(9)	CL.
		100	99	90	45	16	14	1	A-4(2)	SM.
		100	99	92	57	33	23	7	A-4(5)	ML-CL.
		100	99	87	46	28	28	10	A-4(2)	SC.
			100	91	21	10	(7)	(7)	A-2-4(0)	SM.
		100	99	92	34	22	19	2	A-2-4(0)	SM.
		100	99	88	30	20	25	1	A-2-4(0)	SM.
	100	90	87	81	39	27	32	11	A-6(2)	CL.
		100	99	98	66	49	50	20	A-7-6(10)	ML-CL.
		100	99	88	26	9	(7)	(7)	A-2-4(0)	SM.
		100	99	87	20	15	15	1	A-2-4(0)	SM.
			100	87	35	21	26	5	A-2-4(0)	SM-SC.
		100	99	98	44	19	18	1	A-4(2)	SM.
		100	99	97	46	24	19	4	A-4(2)	SM-SC.
		100	99	94	44	19	29	4	A-4(2)	SM.
		100	99	72	24	5	(7)	(7)	A-2-4(0)	SM.
			100	74	26	6	(7)	(7)	A-2-4(0)	SM.
			100	72	33	19	22	8	A-2-4(0)	SC.
		100	99	90	73	58	46	24	A-7-6(15)	CL.
		100	99	96	32	6	(7)	(7)	A-2-4(0)	SM.
			100	97	29	10	(7)	(7)	A-2-4(0)	SM.
		100	99	95	29	11	16	3	A-2-4(0)	SM.
		100	99	71	15	7	(7)	(7)	A-2-4(0)	SM.
			100	72	17	9	(7)	(7)	A-2-4(0)	SM.
			100	68	14	10	(7)	(7)	A-2-4(0)	SM.
		100	99	95	50	10	(7)	(7)	A-4(3)	ML.
			100	96	52	18	19	1	A-4(3)	ML.
		100	99	96	69	36	33	14	A-6(9)	CL.
		100	99	97	56	32	32	4	A-4(4)	ML.
		100	99	94	52	33	28	5	A-4(4)	ML-CL.
			100	94	51	32	23	5	A-4(3)	ML-CL.
		100	99	77	29	19	18	3	A-2-4(0)	SM.
		100	99	75	33	26	22	5	A-2-4(0)	SM-SC.
		100	99	79	37	30	29	8	A-4(0)	SM-SC.

TABLE 11.—*Engineering test data* [1] *for*

Soil name and location	Parent material	Alabama Report No.	Depth	Horizon	Mechanical analysis [2]		
					Shrinkage factors		
					Limit	Ratio	Volumetric change
			Inches				*Percent*
NE corner NW¼NE¼NW¼ sec. 10, T. 6 S., R. 3 E. (More sandy texture.)	Coastal Plain sediments.	2467	0–10	A_p			
		2432	25–45	B_1	17	1.79	0
		2430	45–64	B_2	16	1.81	1
NE¼SE¼NE¼ sec. 22, T. 5 S., R. 2 E. (Fine texture.)	Coastal Plain sediments.	2407	0–8	A_p	14	1.78	2
		2456	8–32	B_{21}	14	1.83	11
		2393	32–56	B_{22}	24	1.59	0
Tifton very fine sandy loam: SW¼NW¼ sec. 5, T. 6 S., R. 4 E. (Modal.)	Coastal Plain sediments.	2475	0–7	A_p			
		2459	15–35	B_2	15	1.87	9
		2389	59–80+	C	27	1.53	10
NW¼NW¼NE¼ sec. 8, T. 6 S., R. 4 E. (Finer texture.)	Coastal Plain sediments.	2400	0–6	A_p			
		2424	22–42	B_2	20	1.69	4
		2425	42–62	B_3	22	1.62	8
SW¼SW¼SE¼ sec. 28, T. 2 S., R. 3 E. (Clayey texture.)	Coastal Plain sediments.	2468	0–8	A_p	15	1.79	1
		2406	14–32	B_2	18	1.80	8
		2440	44–62+	C_1	24	1.65	14

[redacted]

soil samples taken from 35 soil profiles—Continued

Mechanical analysis [2]—Continued									
Percentage passing sieve [3]						Percentage smaller than 0.005 mm.[3]	Liquid limit	Plasticity index	Classification
2-in.	1-in.	No. 4 (4.76 mm.)	No. 10 (2.0 mm.)	No. 40 (0.42 mm.)	No. 200 (0.074 mm.)				AASHO [4] / Unified [5]
		100	99	90	17	9	(7)	(7)	A–2–4(0) / SM.
		100	99	89	23	14	14	2	A–2–4(0) / SM.
		100	99	89	30	23	19	3	A–2–4(0) / SM.
			100	87	31	18	15	3	A–2–4(0) / SM.
			100	90	46	17	29	13	A–6(3) / SC.
		100	99	91	46	32	24	4	A–4(2) / SM–SC.
	100	94	91	88	47	13	(7)	(7)	A–4(2) / SM.
	100	79	76	73	45	26	23	7	A–4(2) / SM–SC.
		100	99	93	58	32	38	12	A–6(5) / ML–CL.
		100	99	98	50	16	(7)	(7)	A–4(3) / SM.
	100	82	78	77	44	23	24	6	A–4(2) / SM–SC.
	100	74	54	53	30	15	30	6	A–2–4(0) / SM–SC.
	100	91	89	86	56	18	17	5	A–4(4) / ML–CL.
	100	95	89	87	66	36	31	13	A–6(7) / CL.
		100	99	94	70	43	39	12	A–6(8) / ML–CL.

[3] Based on total material. Laboratory test data corrected for amount discarded in field sampling.

the growth of fungi than for the growth of bacteria may lead to the formation of more organic matter in the soil. This is because the more insoluble products of bacterial growth tend to stay in the soil. Among the factors that affect the kind and quantity of micro-organisms in the soil are the kinds of crops, the kinds and amounts of fertilizer that are used, and tilth.

Parent material

The parent material in which most of the soils of Baldwin County formed consists of sediments transported by streams that flow into the Gulf of Mexico. In some places, however, the waters of the Gulf of Mexico deposited

Through the years, large streams, such as the Mobile and Tensaw Rivers, have meandered considerably. As a result, there are many areas in the county where streams once flowed but where the channel has now shifted to another area. The textural pattern of the soils along these old stream channels is the result of the way in which sediments were deposited on the flood plains and on areas that are now stream terraces.

Generally, when the streams overflowed, the floodwaters deposited sediments in a regular pattern. Sand and other coarse-textured material was deposited first, near the channel of the stream. In many places this

TABLE 12.—*Mechanical analyses of several soils*

			Particles	Very			Very	

TABLE 13.—*Classification of the soil series in higher categories and important factors that have contributed to the formation of the soils*

ZONAL

Great soil group and series	Parent material	Slope range	Drainage	Degree of profile development[1]
Red-Yellow Podzolic soils:				
Bowie	Acid sandy clay loam to clay on the Coastal Plain.	2 to 12 percent	Moderately good	Medium.
Cahaba	Old alluvium from acid sandy loam to sandy clay loam.	2 to 5 percent	Good	Medium.
Carnegie	Beds of sandy clay loam to sandy clay	0 to 12 percent	Good	Strong.
Cuthbert	Sand and clay	2 to 17 percent	Moderately good	Medium.
Faceville	Beds of loam, clay loam, and sandy clay loam.	0 to 8 percent	Good	Strong.
Flint (with some characteristics of Low-Humic Gley soils).	Old alluvium of silty clay and clay	0 to 5 percent	Moderately good	Strong.
Goldsboro (with some characteristics of Low-Humic Gley soils).	Sand loam and sandy clay loam	0 to 8 percent	Moderately good	Medium.
Irvington (with some characteristics of Planosols).	Clay loam and sandy clay loam	0 to 5 percent	Moderately good	Medium.
Izagora (with some characteristics of Low-Humic Gley soils).	Old alluvium of sand and sandy clay	0 to 5 percent	Moderately good	Strong.

tions of Soils." Laboratory characterization data for two Lakeland soils mapped in Baldwin County are given in Southern Cooperative Series Bulletin 61.[9] Similar data are also given for two Greenville soils that occur in Cone-

Podzolic great soil group. Soils of the Ruston, Magnolia, Carnegie, Orangeburg, Faceville, and Cahaba series are near the central concept for the red members.

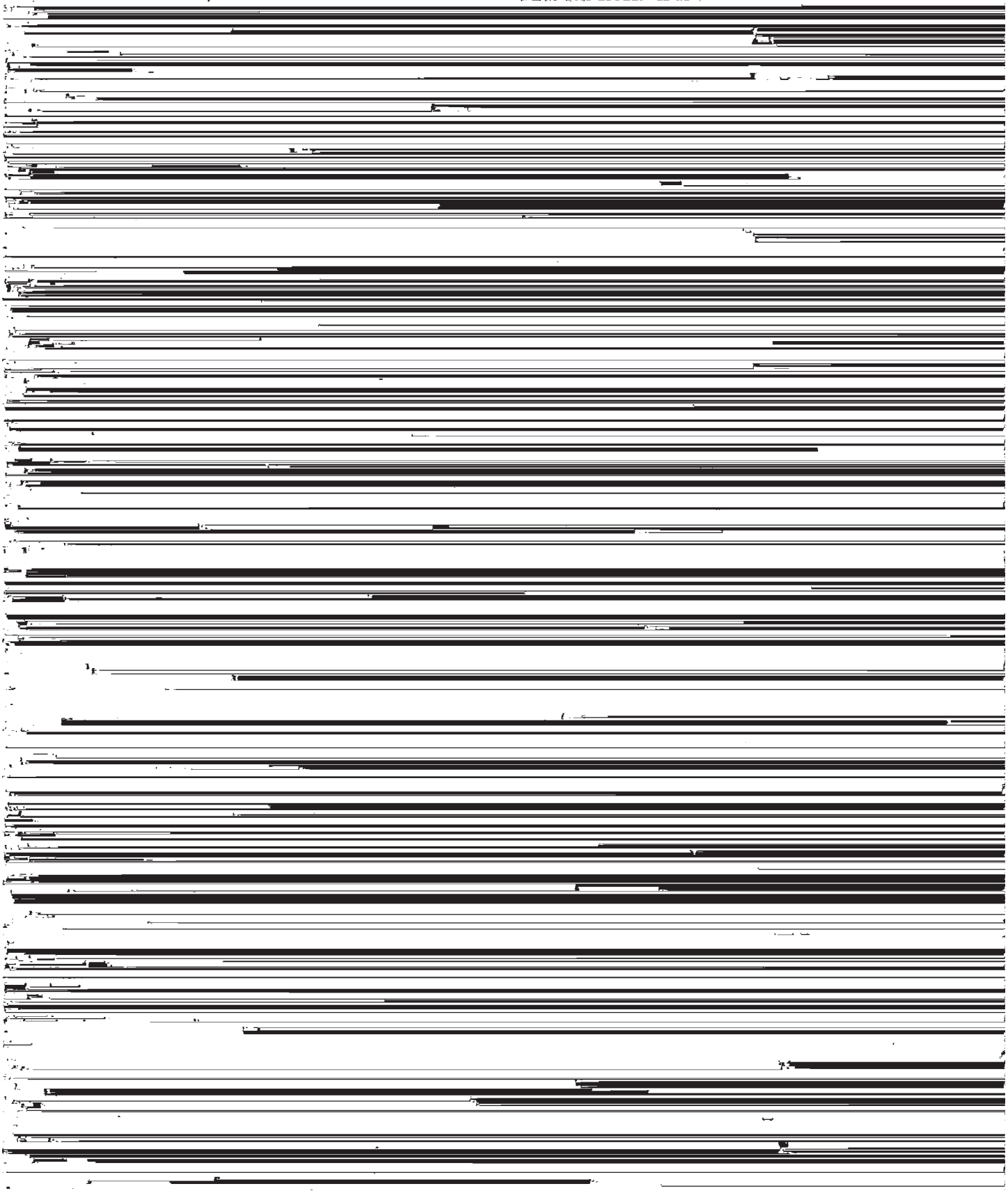
The Goldsboro, Flint, Lynchburg, and Izagora soils are

LOW-HUMIC GLEY SOILS

In this county the soils of the Planosol great soil group

Available moisture. That part of the moisture in a soil that can

Great soil group. A broad group of soils that have internal char-



Profile, soil. A vertical section of the soil through all of its horizons and extending into the parent material.

Relief. The elevations or inequalities of a land surface, considered collectively.

Sand. Individual rock or mineral fragments that have diameters ranging from 0.05 millimeter (0.002 inch) to 2.0 millimeters (0.079 inch). As a soil textural class, soil material that contains 85 percent or more of sand and not more than 10 percent

aggregates. Terms: Structureless (single grain or massive), weak, moderate, and strong.

Class. Size of aggregates. Terms: Very fine or very thin, fine or thin, medium, coarse or thick, and very coarse or very thick.

Type. Shape of soil aggregates. Terms: Platy, prismatic, columnar, angular blocky, subangular blocky, granular (nonporous), and crumb (very porous)